VIRGINIA BOARD OF DENTISTRY
AGENDA
June 09, 2017
Department of Health Professions
Perimeter Center - 9960 Mayland Drive, 2nd Floor Conference Center, - Henrico, Virginia 23233

Board Business **Page**

9:00 a.m. **Call to Order – Dr. Rizkalla, President**

Evacuation Announcement – Ms. Reen

Public Comment – Dr. Rizkalla

Approval of Minutes - Dr. Rizkalla

- March 9, 2017 Formal Hearing P. 1
- March 10, 2017 Business Meeting P. 4
- May 12, 2017 Formal Hearings P. 11

DHP Director's Report – Dr. Brown

Liaison/Committee Reports

- **Dr. Bryant**
  *ADEX

- **Dr. Watkins**
  *SRTA
  *Exam Committee
  February 28, 2017 unapproved minutes P. 17

- **Dr. Alexander**
  *Advisory Panel on Opioids

- **Dr. Wyman**
  *Regulatory-Legislative Committee – Meeting June 30, 2017
  *AADB Mid-Year Meeting P. 20

- **Dr. Rizkalla**
  *AADB Mid-Year Meeting P. 24

Legislation and Regulation – Ms. Yeatts

- Status Report on Regulatory Actions
- Board Action on Regulations for Opioid Prescribing P. 26
- Board Action on Regulations for Remote Supervision P. 28

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Board Discussion/Action

- Adding PGY1 Pathway for Licensure – Dr. Watkins
  *Accreditation Standards for Advanced Education Programs In General Practice Residency — P. 46
- Continuing Education Tracking Services – Dr. Rizkalla
- ADA's Development of a National OSCE – Dr. Rizkalla
- Proposed New ADA Agency Comment Opportunity — P. 186

Board Counsel Report – Mr. Rutkowski

- Board selects standard for the Admissibility of Expert Testimony — P. 206

Deputy Executive Report/Business – Ms. Palmatier — P. 207

- Disciplinary Activity Report

Executive Director's Report/Business – Ms. Reen

- Proposed 2018 Meeting Calendar

Closed Session pursuant to Section 2.2 – 3711.A(11) — P. 215

- Review Proposed Law Exam Questions — P. 217

UNAPPROVED

VIRGINIA BOARD OF DENTISTRY
FORMAL HEARING
March 09, 2017

TIME AND PLACE: The meeting of the Virginia Board of Dentistry was called to order at 12:46 p.m., on March 09, 2017 in Board Room 4, Department of Health Professions, 9960 Mayland Drive, Suite 201, Henrico, Virginia.

PRESIDING: Tonya A. Parris-Wilkins, D.D.S

MEMBERS PRESENT:
Nathanial C. Bryant, D.D.S.
August A. Petticolas Jr., D.D.S.
Tammy C. Ridout, R.D.H.
Bruce S. Wyman, D.M.D.

MEMBERS ABSENT:
Al Rizkalla, D.D.S
Patricia B. Bonwell, R.D.H., PhD
John M. Alexander, D.D.S.
James D. Watkins, D.D.S
Carol R. Russek, JD

STAFF PRESENT:
Sandra K. Reen, Executive Director
Christine M. Houchens, Licensing Manager
Sheila Beard, Executive Assistant

COUNSEL PRESENT: James E. Rutkowski, Assistant Attorney General

OTHERS PRESENT:
Julia Bennett, Assistant Attorney General
Tammie D. Jones, Adjudication Specialist
Jacqueline Barreto, Court Reporter
Marc A. Brown, Esquire, Respondent's Counsel

ESTABLISHMENT OF A QUORUM: With 5 Board members present, a panel was established in accordance with Va. Code §54.1-2400(11).

Cleophus Clark, D.D.S.

Case Nos. 162414, 163160, and 171201

Dr. Clark was present with legal counsel in accordance with the Notice of the Board dated February 7, 2017.

Dr. Parris-Wilkins swore in the witnesses.

Prior to opening statements, Ms. Bennett noted that the respondent and the Commonwealth entered into a stipulation agreement, consenting to the findings of fact and conclusions of law set forth in allegations #3-6 of the Statement of Allegations. The joint motion to accept the agreement was granted by Dr.

Parris-Wilkins prior to the Formal Hearing and therefore only allegation #2 would be discussed during the Formal Hearing.

Following Ms. Bennett's opening statement; Dr. Parris-Wilkins admitted into evidence Commonwealth's exhibits 1-11.

Following Mr. Brown's opening statement; Dr. Parris-Wilkins admitted into evidence Respondent's exhibits 1-11.

Testifying on behalf of the Commonwealth were Karen Brooke, DHP Senior Investigator and witness "Patient A".

Testifying on behalf of Dr. Clark was Dr. Jason Hong. Dr. Clark testified on his own behalf.

Closed Meeting: Dr. Wyman moved that the Board enter into a closed meeting pursuant to §2.2-3711(A)(27) and Section 2.2-3712(F) of the Code of Virginia for the purpose of deliberation to reach a decision in the matter of Dr. Clark. Additionally, he moved that Board staff, Ms. Reen, Ms. Houchens, Ms. Beard, and Board counsel, Mr. Rutkowski attend the closed meeting because their presence in the closed meeting was deemed necessary and would aid the Board in its deliberations. The motion was seconded and passed.

Reconvene: Dr. Wyman moved to certify that this panel of the Board heard, discussed or considered only public business matters lawfully exempted from open meeting requirements under the Virginia Freedom of Information Act and only such public business matters as were identified in the motion by which the closed meeting was convened. The motion was seconded and passed.

The Board reconvened in open session pursuant to § 2.2-3712(D) of the Code.

Decision: Dr. Petticolas moved to accept the Findings of Facts and Conclusion of Law as presented by the Commonwealth, amended by the Board and read by Mr. Rutowski. The motion was seconded and passed.

Mr. Rutkowski reported that Dr. Clark is assessed a monetary penalty of $5000 and required to complete, within 6 months from the date of entry of the Order, a 3 credit hour course in the subject of recordkeeping and a 4 credit hour course in the subject of implant surgical placement. The continuing education courses shall be obtained from a program accredited by the Commission on Dental Accreditation ("CODA") of the American Dental Association.

Dr. Petticolas moved the adoption of the sanctions imposed as read by Mr. Rutkowski. The motion was seconded and passed.

ADJOURNMENT: The Board adjourned at 5:35 p.m.

Tonya A. Parris-Wilkins D.D.S., Secretary-Treasurer

Sandra K. Reen, Executive Director

Date

Date

VIRGINIA BOARD OF DENTISTRY
MINUTES
March 10, 2017

TIME AND PLACE: The meeting of the Board of Dentistry was called to order at 9:03 a.m. on March 10, 2017, at the Department of Health Professions, 9960 Mayland Drive, Suite 201, Board Room 4, Henrico, Virginia 23233.

PRESIDING: A. Rizkalla, D.D.S., President

BOARD MEMBERS PRESENT:
John M. Alexander, D.D.S
Tonya A. Parris-Wilkins, D.D.S.
Nathaniel C. Bryant, D.D.S.
Augustus A. Petticolas, Jr., D.D.S.
Tammy C. Ridout, R.D.H.
Carol R. Russek, J.D., Citizen Member
James D. Watkins, D.D.S.
Bruce S. Wyman, D.M.D.

BOARD MEMBER ABSENT: Patricia B. Bonwell, R.D.H., PhD

STAFF PRESENT:
Sandra K. Reen, Executive Director for the Board
Elaine J. Yeatts, DHP Senior Policy Analyst
Kelley Palmatier, Deputy Executive Director for the Board
Sheila Beard, Executive Assistant for the Board
Donna Lee, Discipline Case Manager for the Board

COUNSEL PRESENT: James E. Rutkowski, Assistant Attorney General

OTHERS PRESENT: Lisa R. Hahn, Chief Deputy Director, DHP

ESTABLISHMENT OFA QUORUM: With nine members of the Board present, a quorum was established.

Ms. Reen read the emergency evacuation procedures.

Dr. Rizkalla explained the parameters for public comment and opened the public comment period.

PUBLIC COMMENT: No public comments.

APPROVAL OF MINUTES: Dr. Rizkalla asked if there were any corrections to the December 9, 2016 Business Meeting minutes. Dr. Petticolas moved to approve the minutes as published. The motion was seconded and passed.

DHP DIRECTOR'S MINUTES:

Ms. Hahn complimented the Board for being ahead of the curve by working on regulations dealing with the prescribing of opioids for acute and chronic dental pain before the legislative requirement becomes effective.

LIAISON/COMMITTEE REPORTS:

ADEX. Dr. Bryant stated that the convention will be held in August 2017.

SRTA. Dr. Watkins stated that the Board of Directors met by telephone conference call to discuss the licensure exam. He said the loss of VCU as a test site was a huge hit; the budget shows a firm financial base; and the exam process is going well.

Board of Health Professions (BHP). Dr. Watkins said a meeting was held on February 23, 2017, to review the budget and to discuss a feasibility study for anesthesiologist assistants; telehealth; and Sanction Reference Points. The next meeting will be held in May.

Exam Committee. Dr. Watkins asked if there were any questions about the information in the Committee's December 16, 2016 minutes.

AADB. Dr. Alexander said the Board is up to date with the rest of the country regarding dentistry; all states have the same problems and issues with anesthesia; AADB can be a great resource to contact with questions; and the clinics were very useful.

Advisory Panel on Opioids. Dr. Alexander stated that on January 23, 2017 the Committee developed draft regulations on how dentists should prescribe opioids with the goals of prescribing for the least amount of days possible and avoiding over-prescribing. He stated the Committee agreed that if a dentist is prescribing for chronic pain, he would need to follow the regulations of the Board of Medicine for chronic pain. It also agreed it is important for dentists to have continuing education on opioids and to teach patients about the dangers of opioids; proper disposal of opioids; and about not keeping excess medicines.

Regulatory-Legislative Committee – RAP Meeting. Dr. Wyman stated the Committee was charged to look at the education requirements for Dental Assistants II (DAII) in Virginia and the fact that there are very few registered. He stated that through the RAP it was learned that in Pennsylvania over 50% of dental offices use a DAII to free up dentists from doing basic restoration treatments. Dr. Wyman said that many of the panelists supported

recommendations to change the DAII curriculum to competency based requirements; establish requirements for instructors; and to develop laboratory training that is mannequin based. All panelists were instructed to provide Ms. Reen with their recommendations, which will be discussed by the Committee.

LEGISLATION AND REGULATIONS:

Status Report on Regulatory Actions. Ms. Yeatts reviewed the status on the following Regulatory Actions:

- Credit for volunteer hours and extension of time for CE went into effect on February 10, 2017. She added that other boards have used these regulations as their model.
- Administration of nitrous oxide only also went into effect on February 10, 2017.
- Eliminating the requirement to post a DEA registration went into effect on March 9, 2017.
- Conforming rules to ADA guidelines on moderate sedation were deemed inappropriate for fast track action so the standard process will be followed.
- Requirement for capnography for monitoring anesthesia or sedation is at the Governor's Office for approval to publish as final regulations.

Report of 2017 General Assembly. Ms. Yeatts reviewed legislation passed by the General Assembly, stating:

- HB 1474 changes the provisions for dental hygienists to practice under remote supervision and the Board will need to adopt revised regulations at its June meeting.
- HB 1748 provides liability protection for administrators of charity health care services.
- HB 1799 authorizes the Board of Pharmacy to address FDA action on a substance 30 days after publication in the Federal register.
- HB 1885 limits the amount of opioids that can be prescribed and requires a prescriber to request information about a patient from the Prescription Monitoring Program when initiating a new course of treatment that includes the prescribing of opioids.
- HB 2164 adds gabapentin to the list of drugs of concern.
- HB 2165 requires electronic prescriptions for drugs containing opiates beginning July 1, 2020.
- HB 2167 requires the Boards of Dentistry and Medicine to adopt regulations for prescribing Opioids and buprenorphine.
- HB 2470 adds thiafentanil to Schedule II and Brivaracetam to Schedule V of the Drug Control Act.
- SB 848 establishes requirements for dispensing Naloxone for use in opioid overdose reversal.

Board Action on Draft Regulations for Opioid Prescribing. Following Ms. Yeatts review of the draft, the Board made the following amendments:

- in 18VAC60-21-103(C) the term "medical record" was changed to "patient record".
- in 18VAC60-21-105(1) the terminology was changed to address a "pain management specialist" to be consistent with 18VAC60-21-103(B)(3).
- 18VAC60-21-106 was changed to require dentists who prescribes any Schedule II through IV controlled substances to obtain two hours of continuing education on pain management during the renewal cycle following the effective date of the regulations which may be included in the 15 hours required for license renewal.

Dr. Watkins moved to adopt the amended regulations. The motion was seconded and passed.

Board Action on Petitions for Rulemaking.

- Dr. Carney petitioned the Board to amend three regulatory sections which address the requirements for taking vital signs when sedation is being administered. Following discussion, Dr. Petticolas moved to refer this matter to the Legislative-Regulatory Committee. The motion was seconded and passed.
- Dr. Mayberry petitioned the Board to recognize the American Board of Dental Specialties as a bona fide dental specialty certifying organization and to authorize dentists who were certified by the American Board of Implantology/Implant Dentistry be recognized as Dental Implant Specialists. Ms. Ridout moved to refer this matter to the Legislative-Regulatory Committee. The motion was seconded and passed.

BOARD DISCUSSION/ACTION:

Exam Committee Motion that the Board Reaffirm its Position of Requiring Live Patient Exams.
Dr. Watkins offered the motion for discussion. Following a brief discussion in support of the motion, it was passed.

How Should the Board Address the Use of a Cavitron Device. Dr. Watkins explained that during a recent informal conference, Special Conference Committee C discussed its concern that dentists are allowing dental assistants to use Cavitrons for scaling. He asked if the Board should issue a guidance document to inform licensees that dental assistants cannot use Cavitrons. Ms. Reen suggested that the Board review 18VAC60-21-140 which restricts delegation of scaling to only dental hygienists. Discussion followed about how to proceed and Ms. Ridout made a motion to refer this matter to the Legislative-Regulatory Committee. The motion was seconded and passed.

How Should the Board Address the CDC Guidelines.
Dr. Rizkalla stated that the CDC Guidelines are referred to in the Board's Guidance Documents and questioned if the CDC Guidelines should be referenced in the Regulations. Ms. Yeatts suggested that a link to the CDC guidelines be placed in each Guidance Document that mentions the CDC Guidelines. The Board agreed by consensus to proceed with Ms. Yeatts' suggestion.

Continuing Education Tracking Services.
Dr. Rizkalla stated that at the AADB conference he was very impressed with the discussions and demonstrations by continuing education tracking services which allows licensees to see their continuing education certificates with a click of a mouse. Ms. Yeatts indicated other boards have access to voluntary tracking services. Questions were raised about how the services are funded. Dr. Wyman moved that Ms. Reen research the continuing education tracking services and present the Board with more information about how they function and the costs. The motion was seconded and passed.

BOARD COUNSEL REPORT:

Mr. Rutkowski asked Board members to not chat with or thank respondents or witnesses at an informal conference or formal hearing.

REPORT ON CASE ACTIVITY:

Ms. Palmatier reviewed her report noting that from January 1, 2017 through February 23, 2017, 45 cases were received and 31 were closed. She then reported the following statistics for the October 1, 2016 to December 31, 2016 quarter:

- 37 patient care cases were received and 58 were closed for a 171% clearance rate;
- The current pending caseload older than 250 days is 28% and the goal is 20%; and
- 75% of the patient care cases were closed within 250 days and the goal is 90%.

She added that between November 19, 2016 and February 23, 2017, the Board did not suspend any licenses.

Dr. Petticolas stated his concern that some allegations are not on target and make it difficult to sanction violations. Ms. Palmatier acknowledged the concern and explained the process for developing allegations.

62nd Southern Conference of Dental Deans and Examiner.
Ms. Palmatier said the conference was very enlightening and explained the "gamification" approach now in use at dental schools through which students develop clinical skills using video gaming elements in learning environments. She also noted the average debt a dental student has incurred through dental school is $262,119. Dr. Bryant and Dr. Watkins agreed with Ms. Palmatier's report.

Ms. Reen reminded Board members that each attendee at a Board related conference or meeting is required to submit a report to Dr. Brown. She added that this requirement does not apply for participating in an exam.

EXECUTIVE DIRECTOR'S REPORT/BUSINESS:

Status Report on a Proposal to Change Renewal Timeframe.
Ms. Reen explained work on this project is in progress but not completed.

Pending Regulatory Changes.
Ms. Reen stated the changes to clarify provisions that went into effect on December 2, 2015 is also in progress.

New Employee.
Ms. Reen introduced and welcomed Sheila Beard, Executive Assistant to the Board's staff.

Correspondence to DOCS.
Ms. Reen provided information on the letter which was sent to DOCS on behalf of the Board requesting action to correct the misinformation included in the DOCS Education Course advertisement sent to dentists in Virginia. She provided the response she received from DOCS, and also an ADA Update that contained a clarification that there is no "grandfather clause" in the ADA Sedation and Anesthesia Guidelines which was also addressed in the DOCS advertisement.

Mailings.
Ms. Reen asked about not mailing the notebooks with the agenda package and having them to use during meetings. The Board agreed by consensus. Discussion followed about "going green" by only providing agenda packages electronically. Ms. Reen and Ms. Beard agreed to provide the packages based on each members preference.

Calendar of Meetings.
Ms. Reen said the proposed meeting calendar for 2018 will be sent out for review so that it can be approved at the June Board

meeting. Ms. Reen asked each Special Conference Committee to give feedback to Ms. Palmatier regarding their interest in holding informal conferences on days other than Fridays for consideration in developing the calendar.

Service Recognition.
Ms. Reen read thank you notes from Dr. Gaskins and Ms. Swain for the December 2016 luncheon and gifts they received for serving as Board members and reported that Ms. Swecker called to express her appreciation. Ms. Reen stated that she has contacted the Southwest Dental Society about giving a presentation. This would make it possible to give Dr. Rolon her plaque and gift personally.

ADJOURNMENT: With all business concluded, the meeting was adjourned at 11:45 a.m.

A. Rizkalla, D.D.S., President

Sandra K. Reen, Executive Director

Date

Date

VIRGINIA BOARD OF DENTISTRY
FORMAL HEARING
May 12, 2017

TIME AND PLACE: The meeting of the Virginia Board of Dentistry was called to order at 9:08 a.m., on May 12, 2017 in Board Room 4, Department of Health Professions, 9960 Mayland Drive, Suite 201, Henrico, Virginia.

PRESIDING: Bruce S. Wyman, D.M.D.

MEMBERS PRESENT:
Patricia B. Bonwell, R.D.H., PhD
Nathaniel C. Bryant, D.D.S.
Augustus A. Petticolas, Jr., D.D.S.
James D. Watkins, D.D.S.

MEMBERS ABSENT:
Tonya A. Parris-Wilkins, D.D.S.
Al Rizkalla, D.D.S.
John M. Alexander, D.D.S.
Tammy C. Ridout, R.D.H.
Carol R. Russek, JD

STAFF PRESENT:
Sandra K. Reen, Executive Director
Sheila M. Beard, Executive Assistant

COUNSEL PRESENT: James E. Rutkowski, Assistant Attorney General

OTHERS PRESENT:
Melanie Pagano, Adjudication Specialist
Shevaun Roukous, Adjudication Specialist
Jackie Barreto, Court Reporter

ESTABLISHMENT OF A QUORUM: With five members present, a quorum was established.

Debra S. Stoll, R.D.H. Reinstatement Case Nos.: 164300

Ms. Stoll was present without legal counsel in accordance with the Notice of the Board dated July 21, 2016.

Dr. Wyman swore in the witnesses.

Ms. Stoll made an opening statement, and she did not have any exhibits to present to the Board.

Ms. Pagano presented the opening statement and presentation of Commonwealth's Exhibits 1-8. Exhibits 1-8 were admitted into evidence.

Ms. Stoll testified on her own behalf.

Testifying on behalf of the Commonwealth was Rebecca Britt, HPMP Case Manager, and Marcella Luna, DHP Senior Investigator.

Closed Meeting: Dr. Watkins moved that the Board enter into a closed meeting pursuant to §2.2-3711(A)(27) and Section 2.2-3712(F) of the Code of Virginia for the purpose of deliberation to reach a decision in the matter of Ms. Stoll. Additionally, he moved that Board staff, Ms. Reen, Ms. Beard, and Board counsel, Mr. Rutkowski attend the closed meeting because their presence in the closed meeting was deemed necessary and would aid the Board in its deliberations. The motion was seconded and passed.

Reconvene: Dr. Watkins moved that the Board certify that it heard, discussed or considered only public business matters lawfully exempted from open meeting requirements under the Virginia Freedom of Information Act and only such public business matters as were identified in the motion by which the closed meeting was convened. The motion was seconded and passed.

The Board reconvened in open session pursuant to § 2.2-3712(D) of the Code.

Decision: Dr. Watkins moved to accept the Findings of Facts and Conclusion of Law as presented by the Commonwealth, amended by the Board, and read by Mr. Rutkowski. The motion was seconded and passed.

Mr. Rutkowski reported that the Board denied Ms. Stoll's application for reinstatement of her license to practice dental hygiene in the Commonwealth of Virginia.

Dr. Watkins moved to adopt the decision as read by Mr. Rutkowski. The motion was seconded and passed.

ADJOURNMENT: The Board adjourned at 11:50 a.m.

Bruce Wyman D.D.S.	Sandra K. Reen, Executive Director
Date	Date

VIRGINIA BOARD OF DENTISTRY
FORMAL HEARING
May 12, 2017

TIME AND PLACE: The meeting of the Virginia Board of Dentistry was called to order at 1:07 p.m., on May 12, 2017 in Board Room 4, Department of Health Professions, 9960 Mayland Drive, Suite 201, Henrico, Virginia.

PRESIDING: Bruce S. Wyman, D.M.D.

MEMBERS PRESENT:
Carol R. Russek, JD
Tammy C. Ridout, R.D.H.
Augustus A. Petticolas, Jr., D.D.S.
James D. Watkins, D.D.S.

MEMBERS ABSENT:
Tonya A. Parris-Wilkins, D.D.S.
Al Rizkalla, D.D.S.
John M. Alexander, D.D.S.
Patricia B. Bonwell, R.D.H., PhD
Nathaniel D. Bryant, D.D.S.

STAFF PRESENT:
Sandra K. Reen, Executive Director
Sheila M. Beard, Executive Assistant

COUNSEL PRESENT: James E. Rutkowski, Assistant Attorney General

OTHERS PRESENT:
James Schliessmann, Senior Assistant Attorney General
Shevaun Roukous, Adjudication Specialist
Jackie Barreto, Court Reporter

ESTABLISHMENT OF A QUORUM: With five members present, a quorum was established.

Debra S. Stoll, R.D.H. Reinstatement Case Nos.: 164300

Ms. Combs was present with legal counsel Mr. Peter Baruch in accordance with the Notice of the Board dated March 20, 2017.

Dr. Wyman swore in the witnesses.

Mr. Baruch made an opening statement, and he did not have any exhibits to present to the Board.

Mr. Schliessmann presented the opening statement and presentation of Commonwealth's Exhibits 1-2. Exhibits 1-2 were admitted into evidence.

Testifying on behalf of the Respondent was Jamie Vick, Erin Garrett, and Ms. Combs testified on her own behalf.

Testifying on behalf of the Commonwealth was Karen Booke, DHP Investigator.

Closed Meeting: Dr. Watkins moved that the Board enter into a closed meeting pursuant to §2.2-3711(A)(27) and Section 2.2-3712(F) of the Code of Virginia for the purpose of deliberation to reach a decision in the matter of Ms. Combs. Additionally, he moved that Board staff, Ms. Reen, Ms. Beard, and Board counsel, Mr. Rutkowski attend the closed meeting because their presence in the closed meeting was deemed necessary and would aid the Board in its deliberations. The motion was seconded and passed.

Reconvene: Dr. Watkins moved that the Board certify that it heard, discussed or considered only public business matters lawfully exempted from open meeting requirements under the Virginia Freedom of Information Act and only such public business matters as were identified in the motion by which the closed meeting was convened. The motion was seconded and passed.

The Board reconvened in open session pursuant to § 2.2-3712(D) of the Code.

Decision: Dr. Watkins moved to accept the Findings of Facts and Conclusion of Law as presented by the Commonwealth, amended by the Board, and read by Mr. Rutkowski. The motion was seconded and passed.

Mr. Rutkowski reported that the Board has Indefinitely Suspended the license of Ms. Combs. The suspension shall be stayed if within 30 days from entry of the Order, Ms. Combs provides proof of entry into the Virginia Health Practioner's Monitoring Program ("Virginia HPMP").

Dr. Watkins moved to adopt the decision as read by Mr. Rutkowski. The motion was seconded and passed.

ADJOURNMENT: The Board adjourned at 3:23 p.m.

Bruce Wyman D.D.S.

Sandra K. Reen, Executive Director

Date

Date

UNAPPROVED MINUTES

BOARD OF DENTISTRY
EXAMINATION COMMITTEE
April 28, 2017

TIME AND PLACE:	The Examination Committee convened on April 28, 2017, at 10:00 a.m., at the Department of Health Professions, Perimeter Center, 2nd Floor Conference Center, 9960 Mayland Drive, Henrico, VA 23233.
PRESIDING:	James D. Watkins, D.D.S.
MEMBERS PRESENT:	Nathaniel C. Bryant, D.D.S. Carol R. Russek, JD
MEMBER ABSENT:	Patricia B. Bonwell, R.D.H., PhD.
STAFF PRESENT:	Kelley W. Palmatier, Deputy Executive Director Sheila Beard, Executive Assistant
ESTABLISHMENT OF A QUORUM:	With three members of the Committee present, a quorum was established.
PUBLIC COMMENT:	Dr. Watkins explained the parameters for public comment and opened the public comment period. One written comment was received from Dr. Alan Bream in regards to the dental board examination that we are trying to implement which is more of a law exam versus a clinical type exam. Dr. Bream is addressing a clinical exam. The committee believes Dr. Bream is referencing something similar to a mock board. Dr. Watkins stated this doesn't seem appropriate for the licensing agency and that schools actually have mock boards. The Committee, by consensus, asked Mrs. Palmatier to write a letter from the Board to address the aforementioned comments to Dr. Bream.
APPROVAL OF MINUTES:	Dr. Watkins asked if the Committee members had reviewed the February 10, 2017 minutes and asked if there were any corrections needed. Ms. Russek moved to accept the minutes presented. The motion was seconded by Dr. Bryant and passed.
PGY-1 RESIDENCY IN LIEU OF A CLINICAL EXAMINATION:	Dr. Bryant asked for clarification regarding whether the PGY-1 was in addition to a clinical exam and not in lieu of. Mrs. Palmatier said most states researched have a PGY-1 residency as an additional way to become licensed. Mrs. Palmatier clarified "in lieu of" did not mean an additional requirement on top of a clinical examination but rather an applicant would have the option to do the clinical exam or take a PGY-1 as part of the licensing requirements in Virginia.

Following discussion, Dr. Bryant motioned to use the same language as the Dental Board of Colorado stating "The Board will accept completion of a PGY-1 residency (a CODA-accredited residency that was at least one year long and occurred in a hospital or dental facility) in lieu of clinical examination."

Mrs. Palmatier was asked by the Committee to look into more information by the June 9, 2017 Board meeting about the Advanced Education in General Dentistry (AEGD) and General Practice Residency (GPR) programs to inquire about the length of the programs, and find out what neighboring states are doing.

IMPLEMENTING A LAW EXAM FOR LICENSURE APPLICANTS DISCUSSION OF IMPLEMENTATION:

Mrs. Palmatier reported she has met with the Department of Health Professions Information Technology department to determine whether or not it is feasible take the questions developed by the Board and create the test and make it available on the Board's website. IT stated it is entirely possible, however, they have never done it before, this would be time consuming on their part and referred us to the Board of Nursing for a more economical feasible method. Pearson and PSI are the companies that assess symmetrical sound, legal, and economically feasible professional testing. After further discussion Dr. Watkins made a motion for Mrs. Palmatier to inquire about a RFP in order to retain quotes for outside services. The motion was seconded and passed.

CLOSED MEETING:

Ms. Russek moved that the Board enter into a closed meeting pursuant to §2.2-3711(A)(11) of the Code of Virginia for discussion or consideration of tests, examinations, or other information excluded from this chapter pursuant to subdivision 4 of § 2.2-3705.1. Additionally, she moved that Board staff, Kelley Palmatier and Sheila Beard, attend the closed meeting because their presence is deemed necessary and their presence will aid the Committee in its deliberations. The motion was second and passed.

RECONVENE:

Ms. Russek moved to certify that this Committee of Board heard, discussed and considered only public business matters lawfully exempted from open meeting requirements under the Virginia Freedom of Information Act and only such public business matters as were identified in the motion by which the closed meeting was convened. The motion was seconded and passed.

The Board reconvened in open session pursuant to §2.2-3712(D) of the Code.

Dr. Watkins asked that each member look at the questions again and come up with an additional 10 questions. The Committee will present 75 questions to the Board during the June meeting.

The next Exam Committee meeting will be held on July 21, 2017.

ADJOURNMENT: With all business concluded, the meeting was adjourned at 12:17 p.m.

James D. Watkins, D.D.S., Chair

Date

Sandra K. Reen, Executive Director

Date

American Association of Dental Boards Meeting in Chicago, April 23-24

One and the principle objectives of the meeting is interacting ideas from other members across the country. An idea that surfaced again this meeting was that there are multiple vendors that offer free Continuing Credit Monitoring of licensees at no charge to the boards and little or no charge to the licensees. They do derive income from other vendors, including CE providers. Our Executive Director has enquired to state authorities about Virginia utilizing such services, but has been told that they would be contrary to state regulations. Many other states are successfully using such plans and indicate that the dentists as well as board staff have found such programs to be easy and accurate for all to implement and utilize. Often the licensee only needs to photograph the CE completion form and email it to the vendor. The vendor will then send a list of licensees who have not fulfilled requirements to the respective board for appropriate action.

As for the actual formal presentations, the AADB has increased membership and has generated much new activity and committee revamping this past year being lead by its new executive director. Having attending some of the AADB meetings the past 3 years, I have noted a substantial improvement in the value of the AADB.

A presentative was given on updates in Dental Compacts, which may be useful for expediting licensure of licensees in situations where transportability of licenses for new practitioners is an issue. A compact might allow the few new dentists and hygienists who have practiced less than 5 years to get additional licenses in other states besides the initial licensing state. After 5 years, most states allow licensure by credentials. Virginia is at the forefront of this issue since we allow any applicant to present results from any regional dental testing agency and the agency testing results are valid for 5 years so a new practitioner has total flexibility to get licensed in our state. There is a medical compact that is in place in 26 states. In general, the theoretical benefits in dentistry would be "portability, access to care, protect the public, and possibly improve dental care overall". It could have a benefit in teledentistry, but unlike medical practice such as

radiology, it would not be useful to many dental licensees. It could streamline the application process. Over 90% of dentists initially practice in the state where they train. Such compacts would need to be enacted by the respective state legislatures, and typically 1-2 members of each state's BOD are principles in the compact. There would be initial and annual fees for each practitioner in each state where a license is maintained.

There was a lively presentation by Dr. Shannon Mills, an expert in Dental Unit Water Quality Issues. Mycobacteria are universally present in tap water and will propagate biofilms in dental unit water lines, especially the narrow hoses in the dental units. He indicated that tap water should be tested regularly, and that there are several companies who test water and give expertise on how to rid water of contaminants. He showed that almost all untreated dental units have some degree of biofilm presence. There are inline systems that treat tap water for dental units. He indicated that tap water is fine to use for non-surgical treatment, but sterile water should be utilized for surgical procedures, including surgical extractions, periodontal surgery and anywhere that skin or mucosa is penetrated. Tap water is fine for routine scalings. He showed a few isolated cases where contaminated water was traced to infections originating from the dental office.

There was an excellent presentation by Sharon Osborn Popp Ph.D. of Psychometrics in Dental Testing. She reviewed techniques psychometricians use in developing accurate tests, including regional dental clinical exam checks and also written tests for licensure. The presentation was fascinating as to how one can check for question validity, etc. They use test applicants (students) and their responses as well as sophisticated statistical analysis in developing accuracy in test results. These psychometricians can then rate test questions validity by way of content, scoring, technical quality, fidelity, etc.

There was on Open Forum where the hot issue was the ADA sending letters to many state BOD's last year and in this month the ADA sent letters to all state and local ADA components indicating that states should allow more transportability in licensure. Virginia BOD did not receive a letter and is not affected by this at this

time since we accept all clinical licensure testing agencies. However, AADB members stated that the ADA letters were cited as being a result of dental students asking for more lenient licensure requirements and the ADA's desire to enroll as many new dentists as possible. Also, the ADA has publically stated that they have evidence that the present regional clinical exams are not as phychometrically sound as the Osce exam that has been utilized in Canada and and similar one which the ADA has committed millions of dollars to develop their own for the USA. Dr. Popp presented psychometric analyses of the various US regional clinical exams showing that they are indeed equal or more accurate than the Osce exam. Apparently the ADA is seeking to develop it's own income stream by licensing fees for it own Osce exam, which will be available in approximately 2020. There was a heated debate between the 2 present ADA trustees promoting the ADA Osce exam and AADA members, who apparently overwhelmingly oppose the Osce. It was also noted that Canada has discontinued its Osce exam and gone back to a more traditional patient based exam because of many problems associated with the Osce. One ADA trustee promised to produce the "research" that showed inferior psychometric results of the existing regional testing agencies, but the following day, the director of the ADA Testing Services, Dr. David Waldschmidt, only produced a few written memos from sources. He did not allow anyone present at that meeting to examine the totality or detail and the credentials of those whose expertise he cited. Most if not all AADB members present believe that the ADA has not been sufficient in analyzing the accuracy of the regional clinical exam testing agency because in most if not all cases, the ADA have not examined the recent internal statistics of the respective testing agencies. Furthermore, since it is the choice of individual state BOD/s on which clinical exams can be accepted, and since present attendees were not in favor of the newly proposed ADA exam, which will cost many millions of dues paying dollars to develop and implement, it is doubtful that such an ADA exam will be relevant in the future.

There also was a series of detailed presentations on Advancing Infection Prevention, Control and Safety in Dental Settings given by the director of Environmental Health and Safety and the University of the Pacific School of

Dentistry and the Executive Director of the Dental Assistant National Board and its related DALE Foundation. They reviewed all of the federal government regulations and advisory recommendations, especially from CDC and their impact on dental practice. They noted that about 90% of private dental offices denote a dental assistant as the infection control coordinator. They classified breaches in infection control as "Critical" when the bacteria can reach through the oral mucosa and "Non-critical" when outside bacteria are on unbroken skin, or "Semi-critical" when infection is in contact with mucous membranes and non-intact skin. This Powerpoint presentation is now available to the public on the AADB website.

The head of the DANB also presented and indicated that DANB is constantly revamping their renewal requirements for CDA's and also the protocol for training and initial registration. They are also revamping all their IT to make it easier for all concerned parties, including state boards, to retrieve necessary information.

The roundtable discussion of board attorneys again showed some technical legal cases that involved regulatory boards. An attorney also presented a synopsis of new guidelines for using Care Credit. They were recently required by the federal government to implement many new procedures to protect the public by making participating dentists and their staffs more thorough in presenting the option of Care Credit financing. The most drastic change is that most times (there are exceptions) the patient must now call the Care Credit toll free number to initially apply for credit while they are physically present in the dental office.

Respectively submitted,

Bruce Wyman

American Association of Dental Boards

Mid-Year Meeting Report

April 2017

Sunday April 23

1. **Guidelines for teaching pain control and sedation to** dentists and dental students were handed out.
2. **American Dental Education Association Presentation:**
   . Dentistry continues to be a "hot" profession
   . 66 Dental schools in America
   . 18,000 applications 2000 admitted.
   . 1 in 50 will open their own practice. Most will be in some kind of structured form of practice, i.e. Corporate (or military)
3. **American Dental Association Presentation:**
   Board of Trustees approved the development of a Dental Licensure Examination to developed by 2018 for implementation to begin 2020
4. **American Association of Dental Boards Presentation:**
   . An overview of the standing, accomplishments, and goals of the organization was presented.
   .. Attached "State-Of-the Organization"
5. **Dental Compact Task Force Update:**
   . Compacts are formal agreements between states that have the characteristics of both statutory and contractual agreements.
   . State legislatures must enact the compact into state law.
   . AADB should be the initiating organization.
   . Develop an agreement and preliminary bylaws/contract with the states of interest.
   . Recognize that it may not be applicable or appropriate for dentistry.
6. **Dental Unit Waterlines Presentation:**
   Potential health risks associated with dental waterline biofilms where discussed.
   Also, discussed practical steps to manage the quality of water used in dental practices to ensure the safety of patients and staff members.
7. **Psychometrics Presentation:**
   . Psychometrics was explained: Statistics, Testing, and Measurement.
   . Performance tests was discussed. Presence or Absence of skills. Examiner training and Calibration to create reliability, Fidelity, and Fairness.
8. **Open Forum:** Main Subject discussed: ADA developing a licensing examination. The majority opinion was opposed.

Monday April 24

1. **Caucus Meetings:** Discussions on suggested topics for future AADB meetings
   Discussions on ADA developing a licensure exam. Opposed by majority.
2. **General Assembly:** Vote taken to send letter to ADA. Letter enclosed in board package.
3. **Infection Prevention Presentation:**
   . The focus of this presentation was the vulnerabilities in the areas of infection prevention, control and safety that currently exist for dental patients and personnel.
   . Many states refer to the CDC guidelines in their regulations.
4. **Dental Assisting National Board Presentation:**
   DANB offers five national certifications:
   . National Entry Level Dental Assistant – NELDA
   . Certified Dental Assistant – CDA
   . Certified Orthodontic Assistant – COA
   . Certified Preventive Functions Dental Assistant – CPFDA
   . Certified Restorative Functions Dental Assistant – CRFDA
5. **Board Attorneys Roundtable:**
   . CareCredit settlement
   . Few cases were presented showing courts upholding board decisions.

National Dental Examiner Advisory Forum: (ADA presentation)

. Excessive amount of time was spent describing plans for joining National Dental Board Exams part1 and Part2 into one exam.

. Not much time was spent discussing the ADA developing a Licensing exam. By then, most attendees have left to catch flights home.

Respectfully submitted,
A.Rizkalla,DDS

Agenda Item: Board Action on Regulations for Opioid Prescribing

Included in your agenda package are:

A copy of emergency regulations which became effective on April 24, 2017

Staff Note:

In order for continuing education on opioid prescribing offered to dentists before March of 2018 to count towards the 2-hour requirement as specified in the emergency regulation, an amendment must be adopted. Then amended emergency regulations can be filed, reviewed, and approved.

Board action:

Adoption of amendment to 18VAC60-21-106.

DRAFT AMENDMENT TO EMERGENCY REGULATIONS

RE-ADOPTION OF EMERGENCY REGULATIONS

18VAC60-21-106. Continuing education required for prescribers.

Any dentist who prescribes Schedules II through IV controlled substances after April 24, 2017 shall obtain two hours of continuing education on pain management, which must be taken by March 31, 2019. Thereafter, any dentist who prescribes Schedule II through IV controlled substances shall obtain two hours of continuing education on pain management every two years. Continuing education hours required for prescribing of controlled substances may be included in the 15 hours required for renewal of licensure.

Current language:

18VAC60-21-106. Continuing education required for prescribers.

A dentist who prescribes Schedules II through IV controlled substances during one license renewal cycle shall obtain two hours of continuing education on pain management during the next renewal cycle following April 24, 2017. Continuing education hours required for prescribing of controlled substances may be included in the 15 hours required for renewal of licensure.

Agenda Item: Board Action on Regulations for Remote Supervision

Included in your agenda package are:

A copy of the HB1474 of the 2017 General Assembly

A copy of DRAFT regulations to conform to changes in the Code

Board action:

Adoption of draft regulations as an exempt action.

CHAPTER 410

An Act to amend and reenact § 54.1-2722 of the Code of Virginia, relating to practice of dental hygiene; remote supervision.

[H 1474]

Approved March 13, 2017

Be it enacted by the General Assembly of Virginia:

1. That § 54.1-2722 of the Code of Virginia is amended and reenacted as follows:

§ 54.1-2722. License; application; qualifications; practice of dental hygiene.

A. No person shall practice dental hygiene unless he possesses a current, active, and valid license from the Board of Dentistry. The licensee shall have the right to practice dental hygiene in the Commonwealth for the period of his license as set by the Board, under the direction of any licensed dentist.

B. An application for such license shall be made to the Board in writing and shall be accompanied by satisfactory proof that the applicant (i) is of good moral character, (ii) is a graduate of a dental hygiene program accredited by the Commission on Dental Accreditation and offered by an accredited institution of higher education, (iii) has passed the dental hygiene examination given by the Joint Commission on Dental Examinations, and (iv) has successfully completed a clinical examination acceptable to the Board.

C. The Board may grant a license to practice dental hygiene to an applicant licensed to practice in another jurisdiction if he (i) meets the requirements of subsection B; (ii) holds a current, unrestricted license to practice dental hygiene in another jurisdiction in the United States; (iii) has not committed any act that would constitute grounds for denial as set forth in § 54.1-2706; and (iv) meets other qualifications as determined in regulations promulgated by the Board.

D. A licensed dental hygienist may, under the direction or general supervision of a licensed dentist and subject to the regulations of the Board, perform services that are educational, diagnostic, therapeutic, or preventive. These services shall not include the establishment of a final diagnosis or treatment plan for a dental patient. Pursuant to subsection V of § 54.1-3408, a licensed dental hygienist may administer topical oral fluorides under an oral or written order or a standing protocol issued by a dentist or a doctor of medicine or osteopathic medicine.

A dentist may also authorize a dental hygienist under his direction to administer Schedule VI nitrous oxide and oxygen inhalation analgesia and, to persons 18 years of age or older, Schedule VI local anesthesia. In its regulations, the Board of Dentistry shall establish the education and training requirements for dental hygienists to administer such controlled substances under a dentist's direction.

For the purposes of this section, "general supervision" means that a dentist has evaluated the patient and prescribed authorized services to be provided by a dental hygienist; however, the dentist need not be present in the facility while the authorized services are being provided.

The Board shall provide for an inactive license for those dental hygienists who hold a current, unrestricted license to practice in the Commonwealth at the time of application for an inactive license and who do not wish to practice in Virginia. The Board shall promulgate such regulations as may be necessary to carry out the provisions of this section, including requirements for remedial education to activate a license.

E. For the purposes of this subsection, "remote supervision" means that a public health dentist has regular, periodic communications with a public health dental hygienist regarding patient treatment, but such dentist may not have conducted an initial examination of the patients who are to be seen and treated by the dental hygienist and may not be present with the dental hygienist when dental hygiene services are being provided.

Notwithstanding any provision of law, a dental hygienist employed by the Virginia Department of Health who holds a license issued by the Board of Dentistry may provide educational and preventative dental care in the Commonwealth under the remote supervision of a dentist employed by the Department of Health. A dental hygienist providing such services shall practice pursuant to a protocol adopted by the Commissioner of Health on September 23, 2010, having been developed jointly by (i) the medical directors of the Cumberland Plateau, Southside, and Lenowisco Health Districts; (ii) dental hygienists employed by the Department of Health; (iii) the Director of the Dental Health Division of the Department of Health; (iv) one representative of the Virginia Dental Association; and (v) one representative of the Virginia Dental Hygienists' Association. Such protocol shall be adopted by the Board as regulations.

A report of services provided by dental hygienists pursuant to such protocol, including their impact upon the oral health of the citizens of the Commonwealth, shall be prepared and submitted by the

Department of Health to the Virginia Secretary of Health and Human Resources annually. Nothing in this section shall be construed to authorize or establish the independent practice of dental hygiene.

F. For the purposes of this subsection, "remote supervision" means that a *supervising* dentist is accessible and available for communication and consultation with a dental hygienist ~~employed by such dentist~~ during the delivery of dental hygiene services, but such dentist may not have conducted an initial examination of the patients who are to be seen and treated by the dental hygienist and may not be present with the dental hygienist when dental hygiene services are being provided.

Notwithstanding any other provision of law, a dental hygienist may practice dental hygiene under the remote supervision of a dentist who holds an active~~, unrestricted~~ license by the Board and who has a dental ~~office~~ *practice* physically located in the Commonwealth. No dental hygienist shall practice under remote supervision unless he has (i) completed a continuing education course *designed to develop the competencies needed to provide care under remote supervision* offered by an accredited dental education program or from a continuing education provider approved by the Board and (ii) at least two years of clinical experience, consisting of at least 2,500 hours of clinical experience. A dental hygienist practicing under remote supervision shall have professional liability insurance with policy limits acceptable to the supervising dentist. A dental hygienist shall only practice under remote supervision at a ~~community health center,~~ *federally qualified health center;* charitable safety net facility~~,~~; free clinic~~,~~; long-term care facility~~,~~; elementary or secondary school~~,~~; Head Start program~~,~~; or women, infants, and children *(WIC)* program.

A dental hygienist practicing under remote supervision may (a) obtain a patient's treatment history and consent, (b) perform an oral assessment, (c) perform scaling and polishing, (d) perform all educational and preventative services, (e) take X-rays as ordered by the supervising dentist or consistent with a standing order, (f) maintain appropriate documentation in the patient's chart, (g) administer topical oral fluorides under an oral or written order or a standing protocol issued by a dentist or a doctor of medicine or osteopathic medicine pursuant to subsection V of § 54.1-3408, and (h) perform any other service ordered by the supervising dentist or required by statute or Board regulation. No dental hygienist practicing under remote supervision shall administer local anesthetic or nitrous oxide.

Prior to providing a patient dental hygiene services, a dental hygienist practicing under remote supervision shall obtain (1) the patient's or the patient's legal representative's signature on a statement disclosing that the delivery of dental hygiene services under remote supervision is not a substitute for the need for regular dental examinations by a dentist and (2) verbal ~~or written permission of any dentist who has treated the patient in the previous 12 months and can be identified by~~ *confirmation from* the patient *that he does not have a dentist of record whom he is seeing regularly.*

After conducting an initial oral assessment of a patient, a dental hygienist practicing under remote supervision ~~shall consult with the supervising dentist prior to providing~~ *may provide* further dental hygiene services ~~if such patient is medically compromised or has periodontal disease~~ *following a written practice protocol developed and provided by the supervising dentist. Such written practice protocol shall consider, at a minimum, the medical complexity of the patient and the presenting signs and symptoms of oral disease.*

A dental hygienist practicing under remote supervision shall inform the supervising dentist of all findings for a patient. A dental hygienist practicing under remote supervision may continue to treat a patient for 90 days. After such 90-day period, the supervising dentist, absent emergent circumstances, shall either conduct an examination of the patient or refer the patient to another dentist to conduct an examination. The supervising dentist shall develop a *diagnosis and* treatment plan for the patient, and either the supervising dentist or the dental hygienist shall provide the treatment plan to the patient. The supervising dentist shall review a patient's records at least once every 10 months.

Nothing in this subsection shall prevent a dental hygienist from practicing dental hygiene under general supervision whether as an employee or as a volunteer.

2. That the Board of Dentistry shall promulgate regulations to implement the provisions of this act to be effective within 280 days of its enactment.

BOARD OF DENTISTRY

Remote supervision

Part I

General Provisions

18VAC60-21-10. Definitions.

A. The following words and terms when used in this chapter shall have the meanings ascribed to them in § 54.1-2700 of the Code of Virginia:

"Board"

"Dental hygiene"

"Dental hygienist"

"Dentist"

"Dentistry"

"License"

"Maxillofacial"

"Oral and maxillofacial surgeon"

B. The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"AAOMS" means the American Association of Oral and Maxillofacial Surgeons.

"ADA" means the American Dental Association.

"Advertising" means a representation or other notice given to the public or members thereof, directly or indirectly, by a dentist on behalf of himself, his facility, his partner or

associate, or any dentist affiliated with the dentist or his facility by any means or method for the purpose of inducing purchase, sale, or use of dental methods, services, treatments, operations, procedures, or products, or to promote continued or increased use of such dental methods, treatments, operations, procedures, or products.

"CODA" means the Commission on Dental Accreditation of the American Dental Association.

"Code" means the Code of Virginia.

"Dental assistant I" means any unlicensed person under the direction of a dentist or a dental hygienist who renders assistance for services provided to the patient as authorized under this chapter but shall not include an individual serving in purely an administrative, secretarial, or clerical capacity.

"Dental assistant II" means a person under the direction and direct supervision of a dentist who is registered by the board to perform reversible, intraoral procedures as specified in 18VAC60-21-150 and 18VAC60-21-160.

"Mobile dental facility" means a self-contained unit in which dentistry is practiced that is not confined to a single building and can be transported from one location to another.

"Nonsurgical laser" means a laser that is not capable of cutting or removing hard tissue, soft tissue, or tooth structure.

"Portable dental operation" means a nonfacility in which dental equipment used in the practice of dentistry is transported to and utilized on a temporary basis at an out-of-office location, including patients' homes, schools, nursing homes, or other institutions.

"Radiographs" means intraoral and extraoral radiographic images of hard and soft tissues used for purposes of diagnosis.

C. The following words and terms relating to supervision as used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Direct supervision" means that the dentist examines the patient and records diagnostic findings prior to delegating restorative or prosthetic treatment and related services to a dental assistant II for completion the same day or at a later date. The dentist prepares the tooth or teeth to be restored and remains immediately available in the office to the dental assistant II for guidance or assistance during the delivery of treatment and related services. The dentist examines the patient to evaluate the treatment and services before the patient is dismissed.

"Direction" means the level of supervision (i.e., immediate, direct, indirect, or general) that a dentist is required to exercise with a dental hygienist, a dental assistant I, or a dental assistant II or that a dental hygienist is required to exercise with a dental assistant to direct and oversee the delivery of treatment and related services.

"General supervision" means that a dentist completes a periodic comprehensive examination of the patient and issues a written order for hygiene treatment that states the specific services to be provided by a dental hygienist during one or more subsequent appointments when the dentist may or may not be present. Issuance of the order authorizes the dental hygienist to supervise a dental assistant performing duties delegable to dental assistants I.

"Immediate supervision" means the dentist is in the operatory to supervise the administration of sedation or provision of treatment.

"Indirect supervision" means the dentist examines the patient at some point during the appointment and is continuously present in the office to advise and assist a dental hygienist or a dental assistant who is (i) delivering hygiene treatment, (ii) preparing the

patient for examination or treatment by the dentist, or (iii) preparing the patient for dismissal following treatment.

"Remote supervision" means that a supervising dentist is accessible and available for communication and consultation with a dental hygienist ~~employed by such dentist~~ during the delivery of dental hygiene services but such dentist may not have conducted an initial examination of the patients who are to be seen and treated by the dental hygienist and may not be present with the dental hygienist when dental hygiene services are being provided. For the purpose of practice by a public health dental hygienist, "remote supervision" means that a public health dentist has regular, periodic communications with a public health dental hygienist regarding patient treatment, but such dentist may not have conducted an initial examination of the patients who are to be seen and treated by the dental hygienist and may not be present with the dental hygienist when dental hygiene services are being provided.

D. The following words and terms relating to sedation or anesthesia as used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Conscious/moderate sedation" or "moderate sedation" means a drug-induced depression of consciousness, during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. Reflex withdrawal from a painful stimulus is not considered a purposeful response. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.

"Deep sedation" means a drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully following repeated or painful stimulation. Reflex withdrawal from a painful stimulus is not considered a purposeful response. The ability to independently maintain ventilatory function may be impaired.

Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.

"Enteral" means any technique of administration in which the agent is absorbed through the gastrointestinal tract or oral mucosa (i.e., oral, rectal, sublingual).

"General anesthesia" means a drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilator function is often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.

"Inhalation" means a technique of administration in which a gaseous or volatile agent, including nitrous oxide, is introduced into the pulmonary tree and whose primary effect is due to absorption through the pulmonary bed.

"Local anesthesia" means the elimination of sensation, especially pain, in one part of the body by the topical application or regional injection of a drug.

"Minimal sedation" means a drug-induced state during which patients respond normally to verbal commands. Although cognitive function and physical coordination may be impaired, airway reflexes, and ventilator and cardiovascular functions are unaffected. Minimal sedation includes "anxiolysis" (the diminution or elimination of anxiety through the use of pharmacological agents in a dosage that does not cause depression of consciousness) and includes "inhalation analgesia" (the inhalation of nitrous oxide and oxygen to produce a state of reduced sensibility to pain without the loss of consciousness).

"Moderate sedation" (see the definition of conscious/moderate sedation).

"Monitoring" means to observe, interpret, assess, and record appropriate physiologic functions of the body during sedative procedures and general anesthesia appropriate to the level of sedation as provided in Part VI (18VAC60-21-260 et seq.) of this chapter.

"Parenteral" means a technique of administration in which the drug bypasses the gastrointestinal tract (i.e., intramuscular, intravenous, intranasal, submucosal, subcutaneous, or intraocular).

"Titration" means the incremental increase in drug dosage to a level that provides the optimal therapeutic effect of sedation.

"Topical oral anesthetic" means any drug, available in creams, ointments, aerosols, sprays, lotions, or jellies, that can be used orally for the purpose of rendering the oral cavity insensitive to pain without affecting consciousness.

Part III

Direction and Delegation of Duties

18VAC60-21-110. Utilization of dental hygienists and dental assistants II.

A. A dentist may utilize up to a total of four dental hygienists or dental assistants II in any combination practicing under direction at one and the same time. In addition, a dentist may permit through issuance of written orders for services, additional dental hygienists to practice under general supervision in a free clinic or a public health program, or on a voluntary basis.

B. In accordance with § 54.1-2724 of the Code, no dentist shall employ more than two dental hygienists who practice under remote supervision at one time.

18VAC60-21-140. Delegation to dental hygienists.

A. The following duties shall only be delegated to dental hygienists under direction and may only be performed under indirect supervision:

1. Scaling, root planing, or gingival curettage of natural and restored teeth using hand instruments, slow-speed rotary instruments, ultrasonic devices, and nonsurgical lasers, with any sedation or anesthesia administered.

2. Performing an initial examination of teeth and surrounding tissues including the charting of carious lesions, periodontal pockets, or other abnormal conditions for assisting the dentist in the diagnosis.

3. Administering nitrous oxide or local anesthesia by dental hygienists qualified in accordance with the requirements of 18VAC60-25-100.

B. The following duties shall only be delegated to dental hygienists and may be performed under indirect supervision or may be delegated by written order in accordance with §§ 54.1-2722 D and 54.1-3408 J of the Code to be performed under general supervision:

1. Scaling, root planing, or gingival curettage of natural and restored teeth using hand instruments, slow-speed rotary instruments, ultrasonic devices, and nonsurgical lasers with or without topical oral anesthetics.

2. Polishing of natural and restored teeth using air polishers.

3. Performing a clinical examination of teeth and surrounding tissues including the charting of carious lesions, periodontal pockets, or other abnormal conditions for further evaluation and diagnosis by the dentist.

4. Subgingival irrigation or subgingival application of topical Schedule VI medicinal agents pursuant to § 54.1-3408 J of the Code.

5. Duties appropriate to the education and experience of the dental hygienist and the practice of the supervising dentist, with the exception of those listed as nondelegable in 18VAC60-21-130, those restricted to indirect supervision in subsection A of this section, and those restricted to delegation to dental assistants II in 18VAC60-21-150.

C. Delegation of duties to a dental hygienist practicing under remote supervision shall be in accordance with provisions of § 54.1-2722 F of the Code. However, delegation of duties to a public health dental hygienist practicing under remote supervision shall be in accordance with provisions of § 54.1-2722 E of the Code.

Part I

General Provisions

18VAC60-25-10. Definitions.

A. The following words and terms when used in this chapter shall have the meanings ascribed to them in § 54.1-2700 of the Code of Virginia:

"Board"

"Dental hygiene"

"Dental hygienist"

"Dentist"

"Dentistry"

"License"

B. The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Active practice" means clinical practice as a dental hygienist for at least 600 hours per year.

"ADA" means the American Dental Association.

"Analgesia" means the diminution or elimination of pain in the conscious patient.

"CDAC" means the Commission on Dental Accreditation of Canada.

"CODA" means the Commission on Dental Accreditation of the American Dental Association.

"Code" means the Code of Virginia.

"Dental assistant I" means any unlicensed person under the direction of a dentist or a dental hygienist who renders assistance for services provided to the patient as authorized under this chapter but shall not include an individual serving in purely an administrative, secretarial, or clerical capacity.

"Dental assistant II" means a person under the direction and direct supervision of a dentist who is registered to perform reversible, intraoral procedures as specified in 18VAC60-21-150 and 18VAC60-21-160.

"Direction" means the level of supervision (i.e., direct, indirect, or general) that a dentist is required to exercise with a dental hygienist or that a dental hygienist is required to exercise with a dental assistant to direct and oversee the delivery of treatment and related services.

"General supervision" means that a dentist completes a periodic comprehensive examination of the patient and issues a written order for hygiene treatment that states the specific services to be provided by a dental hygienist during one or more subsequent appointments when the dentist may or may not be present. Issuance of the order authorizes the dental hygienist to supervise a dental assistant performing duties delegable to dental assistants I.

"Indirect supervision" means the dentist examines the patient at some point during the appointment and is continuously present in the office to advise and assist a dental hygienist or a dental assistant who is (i) delivering hygiene treatment, (ii) preparing the patient for examination or treatment by the dentist, or (iii) preparing the patient for dismissal following treatment.

"Inhalation" means a technique of administration in which a gaseous or volatile agent, including nitrous oxide, is introduced into the pulmonary tree and whose primary effect is due to absorption through the pulmonary bed.

"Inhalation analgesia" means the inhalation of nitrous oxide and oxygen to produce a state of reduced sensibility to pain without the loss of consciousness.

"Local anesthesia" means the elimination of sensation, especially pain, in one part of the body by the topical application or regional injection of a drug.

"Monitoring" means to observe, interpret, assess, and record appropriate physiologic functions of the body during sedative procedures and general anesthesia appropriate to the level of sedation as provided in Part VI (18VAC60-21-260 et seq.) of Regulations Governing the Practice of Dentistry.

"Nonsurgical laser" means a laser that is not capable of cutting or removing hard tissue, soft tissue, or tooth structure.

"Parenteral" means a technique of administration in which the drug bypasses the gastrointestinal tract (i.e., intramuscular, intravenous, intranasal, submucosal, subcutaneous, or intraocular).

"Remote supervision" means that a supervising dentist is accessible and available for communication and consultation with a dental hygienist ~~employed by such dentist~~ during the delivery of dental hygiene services but such dentist may not have conducted an initial examination of the patients who are to be seen and treated by the dental hygienist and may not be present with the dental hygienist when dental hygiene services are being provided. For the purpose of practice by a public health dental hygienist, "remote supervision" means that a public health dentist has regular, periodic communications with a public health dental hygienist regarding patient treatment, but such dentist may

not have conducted an initial examination of the patients who are to be seen and treated by the dental hygienist and may not be present with the dental hygienist when dental hygiene services are being provided.

"Topical oral anesthetic" means any drug, available in creams, ointments, aerosols, sprays, lotions, or jellies, that can be used orally for the purpose of rendering the oral cavity insensitive to pain without affecting consciousness.

18VAC60-25-60. Delegation of services to a dental hygienist.

A. In all instances and on the basis of his diagnosis, a licensed dentist assumes ultimate responsibility for determining with the patient or his representative the specific treatment the patient will receive, which aspects of treatment will be delegated to qualified personnel, and the direction required for such treatment, in accordance with this chapter, Part III (18VAC60-21-110 et seq.) of the Regulations Governing the Practice of Dentistry, and the Code.

B. Dental hygienists shall engage in their respective duties only while in the employment of a licensed dentist or governmental agency or when volunteering services as provided in 18VAC60-25-50.

C. Duties that are delegated to a dental hygienist under general supervision shall only be performed if the following requirements are met:

1. The treatment to be provided shall be ordered by a dentist licensed in Virginia and shall be entered in writing in the record. The services noted on the original order shall be rendered within a specified time period, not to exceed 10 months from the date the dentist last performed a periodic examination of the patient. Upon expiration of the order, the dentist shall have examined the patient before writing a new order for treatment under general supervision.

2. The dental hygienist shall consent in writing to providing services under general supervision.

3. The patient or a responsible adult shall be informed prior to the appointment that a dentist may not be present, that only topical oral anesthetics can be administered to manage pain, and that only those services prescribed by the dentist will be provided.

4. Written basic emergency procedures shall be established and in place, and the hygienist shall be capable of implementing those procedures.

D. An order for treatment under general supervision shall not preclude the use of another level of supervision when, in the professional judgment of the dentist, such level of supervision is necessary to meet the individual needs of the patient.

E. Delegation of duties to a dental hygienist practicing under remote supervision shall be in accordance with provisions of § 54.1-2722 F of the Code. However, delegation of duties to a public health dental hygienist practicing under remote supervision shall be in accordance with provisions of § 54.1-2722 E of the Code.

Part III

Standards of Conduct

18VAC60-25-110. Patient records; confidentiality.

A. A dental hygienist shall be responsible for accurate and complete information in patient records for those services provided by a hygienist or a dental assistant under direction to include the following:

1. Patient's name on each page in the patient record;

2. A health history taken at the initial appointment, which is updated when local anesthesia or nitrous oxide/inhalation analgesia is to be administered and when medically indicated and at least annually;

3. Options discussed and oral or written consent for any treatment rendered with the exception of prophylaxis;

4. List of drugs administered and the route of administration, quantity, dose, and strength;

5. Radiographs, digital images, and photographs clearly labeled with the patient's name, date taken, and teeth identified;

6. A notation or documentation of an order required for treatment of a patient by a dental hygienist practicing under general supervision as required in 18VAC60-25-60 C; and

7. Notation of each treatment rendered, date of treatment, and the identity of the dentist and the dental hygienist providing service.

B. A dental hygienist shall comply with the provisions of § 32.1-127.1:03 of the Code related to the confidentiality and disclosure of patient records. A dental hygienist shall not willfully or negligently breach the confidentiality between a practitioner and a patient. A breach of confidentiality that is required or permitted by applicable law or beyond the control of the hygienist shall not be considered negligent or willful.

C. A dental hygienist practicing under remote supervision shall document in the patient record that he has obtained (1) the patient's or the patient's legal representative's signature on a statement disclosing that the delivery of dental hygiene services under remote supervision is not a substitute for the need for regular dental examinations by a dentist and (2) verbal ~~or written permission of any dentist who has treated the patient in the previous 12 months and can be~~

~~identified by~~ confirmation from the patient that he does not have a dentist of record whom he is seeing regularly.

Agenda Item: Board Action on Regulations for acceptance of a Post-Graduate Year Residency in lieu of a clinical examination

Included in your agenda package are:

A copy of the Accreditation Standards for Advanced Education Programs in General Dentistry

A copy of the Accreditation Standards for Advanced Education Programs in General Practice Residency

A copy of DRAFT language for acceptance of a Post-Graduate Year Residency

Board action:

Modification or adoption of draft regulatory language

Commission on Dental Accreditation

Accreditation Standards for Advanced Education Programs in General Dentistry

Accreditation Standards For Advanced Education Programs in General Dentistry

Commission on Dental Accreditation
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AEGD Standards

Accreditation Standards for Advanced Education Programs in General Dentistry

Document Revision History

Date	Item	Action
January 30, 2014	Accreditation Standards for Advanced Education Programs in General Dentistry	Approved
July 1, 2014	Accreditation Standards for Advanced Education Programs in General Dentistry	Implemented
February 6, 2015	Revised Standard 1-1	Approved, Implemented
February 6, 2015	Revised Standard 4-4	Approved, Implemented
February 6, 2015	Addition of intent statement to Standard 4-4	Approved, Implemented
August 7, 2015	Revision of term "student/resident" to "resident"; revision of definition of "student/resident."	Approved, Implemented
February 5, 2016	Revised Accreditation Status Definitions	Approved, Implemented
January 1, 2017	Revised Mission Statement	Implemented

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Mission Statement of the Commission on Dental Accreditation

The Commission on Dental Accreditation serves the public and profession by developing and implementing accreditation standards that promote and monitor the continuous quality and improvement of dental education programs.

Commission on Dental Accreditation
Adopted: August 5, 2016

ACCREDITATION STATUS DEFINITIONS

Programs That Are Fully Operational

Approval *(without reporting requirements)*: An accreditation classification granted to an educational program indicating that the program achieves or exceeds the basic requirements for accreditation.

Approval (with reporting requirements): An accreditation classification granted to an educational program indicating that specific deficiencies or weaknesses exist in one or more areas of the program. Evidence of compliance with the cited standards must be demonstrated within eighteen (18) months if the program is between one and two years in length or two years if the program is at least two years in length. If the deficiencies are not corrected within the specified time period, accreditation will be withdrawn, unless the Commission extends the period for achieving compliance for good cause. Identification of new deficiencies during the reporting time period will not result in a modification of the specified deadline for compliance with prior deficiencies.

Circumstances under which an extension for good cause would be granted include, but are not limited to:

- sudden changes in institutional commitment;
- natural disaster which affects affiliated agreements between institutions; faculty support; or facilities;
- changes in institutional accreditation;
- interruption of an educational program due to unforeseen circumstances that take faculty, administrators or students away from the program.

Programs That Are Not Fully Operational

A program which has not enrolled and graduated at least one class of students/residents and does not have students/residents enrolled in each year of the program is defined by the Commission as not fully operational. The accreditation classification granted by the Commission on Dental Accreditation to programs which are not fully operational is "initial accreditation." When initial accreditation status is granted to a developing education program, it is in effect through the projected enrollment date. However, if enrollment of the first class is delayed for two consecutive years following the projected enrollment date, the program's accreditation will be discontinued, and the institution must reapply for initial accreditation and update pertinent information on program development. Following this, the Commission will reconsider granting initial accreditation status.

Initial Accreditation is the accreditation classification granted to any dental, advanced dental or allied dental education program which is not yet fully operational. This accreditation classification provides evidence to educational institutions, licensing bodies, government or other granting agencies that, at the time of initial evaluation(s), the developing education program has the potential for meeting the standards set forth in the requirements for an accredited educational program for the specific occupational area. The classification "initial accreditation" is granted based upon one or more site evaluation visit(s).

Introduction

This document constitutes the standards by which the Commission on Dental Accreditation and its consultants evaluate Advanced Education Programs in General Dentistry for accreditation purposes. It also serves as a program development guide for institutions that wish to establish new programs or improve existing programs.

The standards identify those aspects of program structure and operation that the Commission regards as essential to program quality and achievement of program goals. They specify the minimum acceptable requirements for programs and provide guidance regarding alternative and preferred methods of meeting standards.

Although the standards are comprehensive and applicable to all institutions that offer post-doctoral general dentistry programs, the Commission recognizes that methods of achieving standards may vary according to the size, type, and resources of sponsoring institutions. Innovation and experimentation with alternative ways of providing required training are encouraged, assuming standards are met and compliance can be demonstrated. The Commission has an obligation to the public, the profession, and the prospective resident to assure that programs accredited as Advanced Education Programs in General Dentistry provide an identifiable and characteristic core of required training and experience.

Goals

Advanced Education Programs in General Dentistry are educational programs designed to provide training beyond the level of pre-doctoral education in oral health care, using applied basic and behavioral sciences. Education in these programs is based on the concept that oral health is an integral and interactive part of total health. The programs are designed to expand the scope and depth of the graduates' knowledge and skills to enable them to provide comprehensive oral health care to a wide range of population groups.

The goals of these programs should include preparation of the graduate to:

1. Act as a primary care provider for individuals and groups of patients. This includes: providing emergency and multidisciplinary comprehensive oral health care; providing patient focused care that is coordinated by the general practitioner; and directing health promotion and disease prevention activities.
2. Plan and provide multidisciplinary oral health care for a wide variety of patients including patients with special needs.
3. Manage the delivery of oral health care by applying concepts of patient and practice management and quality improvement that are responsive to a dynamic health care environment.
4. Function effectively and efficiently in multiple health care environments within interdisciplinary health care teams.
5. Apply scientific principles to learning and oral health care. This includes using critical thinking, evidence or outcomes-based clinical decision-making, and technology-based information retrieval systems.
6. Utilize the values of professional ethics, lifelong learning, patient centered care, adaptability, and acceptance of cultural diversity in professional practice.
7. Understand the oral health needs of communities and engage in community service.

Accreditation of One-Year and Two-Year AEGD Programs

The Commission on Dental Accreditation will accredit the following types of Advanced Education in General Dentistry (AEGD) programs: one-year programs, one-year programs with an optional second year of training where residents enroll for the second year of training during the first year, and two-year programs where residents enroll for two years at the beginning of the program. For programs offering an optional second year of training, accreditation of the program will be continued whether or not a resident is enrolled each year for the second year of training as long as there is enrollment of residents in the program's first year.

The addition of an optional second year of training to an existing one-year program will be considered as a major change to that program rather than as the development of a separate new program. Programs wishing to add an optional second year of training should contact Commission staff to acquire the appropriate forms for reporting a major change.

Definition of Terms

Key terms used in this document (i.e., Must, should, could and may) were selected carefully and indicate the relative weight that the commission attaches to each statement. The definition of these words as used in the standards follows:

Competencies: Written statements describing the levels of knowledge, skills, and values expected of residents completing the program.

Competent: The level of knowledge, skills, and values required by residents to perform independently an aspect of dental practice after completing the program.

Examples of evidence to demonstrate compliance include: Desirable condition, practice or documentation indicating the freedom or liberty to follow a suggested alternative.

Goals and Objectives:

> **Program:** Educational goals that describe what the resident will be able to do upon completion of the program. These should describe the resident's abilities rather than the educational experiences they participate in.
>
> **Resident Training:** Educational goals describing the levels of knowledge, skills and values attained when a particular activity is accomplished.

HIPAA: Health Insurance Portability and Accountability Act

Intent: Intent statements are presented to provide clarification to the advanced education programs in general dentistry in the application of and in connection with compliance with the Accreditation Standards for Advanced Education Programs in General Dentistry. The statements of intent set forth some of the reasons and purposes for the particular Standards. As such, these statements are not exclusive or exhaustive. Other purposes may apply.

Interdisciplinary: Including dentistry and other health care professions.

Manage: Coordinate the delivery of care using a patient-focused approach within the scope of their training. Patient-focused care should include concepts related to the patient's social, cultural, behavioral, economic, medical and physical status.

May or could: Indicates freedom or liberty to follow a suggested alternative.

Multidisciplinary: Including general dentistry and specialty disciplines within the profession of dentistry.

Must: Indicates an imperative or duty; an essential or indispensable item; mandatory.

Patients with special needs: Those patients whose medical, physical, psychological, or social situations make it necessary to modify normal dental routines in order to provide dental treatment for that individual. These individuals include, but are not limited to, people with developmental disabilities, complex medical problems, and significant physical limitations.

Should: Indicates a suggested way to meet the standard; highly desirable, but not mandatory.

Sponsor: The institution that has the overall administrative control and responsibility for the conduct of the program.

Resident: The individual enrolled in a Commission on Dental Accreditation-accredited postdoctoral general dentistry education program.

STANDARD 1 – INSTITUTIONAL AND PROGRAM EFFECTIVENESS

1-1 Each sponsoring or co-sponsoring United States-based educational institution, hospital or health care organization **must** be accredited by an agency recognized by the United States Department of Education or accredited by an accreditation organization recognized by the Centers for Medicare and Medicaid Services (CMS).

United States military programs not sponsored or co-sponsored by military medical treatment facilities, United States-based educational institutions, hospitals or health care organizations accredited by an agency recognized by the United States Department of Education or accredited by an accreditation organization recognized by the Centers for Medicare and Medicaid Services (CMS) **must** demonstrate successful achievement of Service-specific organizational inspection criteria.

Examples of evidence to demonstrate compliance may include:
Accreditation certificate or current official listing of accredited institutions
Evidence of successful achievement of Service-specific organizational inspection criteria

1-2 The sponsoring institution **must** ensure that support from entities outside of the institution does not compromise the teaching, clinical and research components of the program.

Examples of evidence to demonstrate compliance may include:
Written agreement(s)
Contract(s)/Agreement(s) between the institution/program and sponsor(s) related to facilities, funding, and faculty financial support

1-3 The authority and final responsibility for curriculum development and approval, resident selection, faculty selection and administrative matters **must** rest within the sponsoring institution.

1-4 The financial resources **must** be sufficient to support the program's stated purpose/mission, goals and objectives.

Examples of evidence to demonstrate compliance may include:
Program budgetary records
Budget information for previous, current and ensuing fiscal year

1-5 All arrangements with co-sponsoring, affiliated institutions, or extramural facilities **must** be formalized by means of current written agreements that clearly define the roles and responsibilities of the parties involved.

Intent: *Institutions include entities such as private practices. The items that are covered in inter-institutional agreements do not have to be contained in a single document. They*

may be included in multiple agreements, both formal and informal (e.g., addenda and letters of mutual understanding). Affiliated institutions or extramural facilities where only didactic instruction is provided are exempt.

Examples of evidence to demonstrate compliance may include:
Written agreements

1-6 There **must** be opportunities for program faculty to participate in institution-wide committee activities.

Examples of evidence to demonstrate compliance may include:
Bylaws or documents describing committee structure
Copy of institutional committee structure and/or roster of membership by dental faculty

1-7 Dental residents **must** have the same privileges and responsibilities provided residents in other professional education programs.

Examples of evidence to demonstrate compliance may include:
Bylaws or documents describing resident privileges

1-8 The program **must** develop overall program goals and objectives that emphasize:

a) general dentistry,
b) resident education,
c) patient care, and
d) community service.

Intent: *The "program" refers to the Advanced Education in General Dentistry Residency that is responsible for training residents within the context of providing patient care. The overall goals and objectives for resident education are intended to describe general outcomes of the residency training program rather than specific learning objectives for areas of residency training as described in Standard 2-1, 2-2, 2-3 and 2-4. Specific learning objectives for residents are intended to be described as goals and objectives or competencies for resident training and included in the response to Standards 2-1, 2-2, 2-3, and 2-4. An example of overall goals can be found in the Goals section on page 8 of this document.*

The program is expected to define community service within the institution's developed goals and objectives.

Examples of evidence to demonstrate compliance may include:
Overall program goals and objectives

1-9 The program **must** have a formal and ongoing outcomes assessment process that regularly evaluates the degree to which the program's stated goals and objectives are being met and make program improvements based on an analysis of that data.

Intent: *The intent of the outcomes assessment process is to collect data about the degree to which the overall goals and objectives described in response to Standard 1-8 are being met.*

The outcomes process developed should include each of the following steps:

1. *development of clear, measurable goals and objectives consistent with the program's purpose/mission;*
2. *implementation of procedures for evaluating the extent to which the goals and objectives are met;*
3. *collection of data in an ongoing and systematic manner;*
4. *analysis of the data collected and sharing of the results with appropriate audiences;*
5. *identification and implementation of corrective actions to strengthen the program; and*
6. *review of the assessment plan, revision as appropriate, and continuation of the cyclical process.*

Examples of evidence to demonstrate compliance may include:
Overall program goals and objectives
Outcomes assessment plan and measures
Outcomes results
Annual review of outcomes results
Meeting minutes where outcomes are discussed
Decisions based on outcomes results.

Ethics and Professionalism

1-10 The program **must** ensure that residents are able to demonstrate the application of the principles of ethical reasoning, ethical decision making and professional responsibility as they pertain to the academic environment, research, patient care, and practice management.

Intent: *Residents should know how to draw on a range of resources such as professional codes, regulatory law, and ethical theories to guide judgment and action for issues that are complex, novel, ethically arguable, divisive, or of public concern.*

STANDARD 2 – EDUCATIONAL PROGRAM

Curriculum Content

2-1 The program **must** provide didactic and clinical training to ensure upon completion of training, the resident is able to:

a) Act as a primary oral health care provider to include:
   1) providing emergency and multidisciplinary comprehensive oral health care;
   2) obtaining informed consent;
   3) functioning effectively within interdisciplinary health care teams, including consultation and referral;
   4) providing patient-focused care that is coordinated by the general practitioner; and
   5) directing health promotion and disease prevention activities.

b) Assess, diagnose and plan for the provision of multidisciplinary oral health care for a wide variety of patients including patients with special needs.

c) Manage the delivery of patient-focused oral health care.

Intent: *"Patients with special needs" is defined in the Definition of Terms on page 10 of this document.*

Patient-focused care should include concepts related to the patient's social, cultural, behavioral, economic, medical and physical status.

Examples of evidence to demonstrate compliance may include:
Goals and objectives or competencies for resident training organized by the areas described above
Didactic and clinical schedules
Resident evaluations
Documentation of treatment planning sessions
Documentation of chart reviews
Records of resident clinical activity including procedures performed in each area described above
Documentation of case simulations

2-2 The program **must** have goals and objectives or competencies for resident training and provide didactic and clinical training to ensure that upon completion of training the resident is able to provide the following at an advanced level of skill and/or case complexity beyond that accomplished in pre-doctoral training:

a) operative dentistry;
b) restoration of the edentulous space;

c) periodontal therapy;
d) endodontic therapy;
e) oral surgery;
f) evaluation and treatment of dental emergencies; and
g) pain and anxiety control utilizing behavioral and/or pharmacological techniques.

Intent: *Determination of "complexity beyond that accomplished in a pre-doctoral training" may be from various aspects including, but not limited to: depth of topic discussion, variety of topic/procedures, quantity of topics/procedures, underlying medical/health considerations related to delivery of topic/procedures, etc.*

Examples of evidence to demonstrate compliance may include:
Goals and objectives or competencies for resident training organized by the areas described above
Didactic and clinical schedules
Records of resident clinical activity including procedures performed in each area described above
Patient records
Resident evaluations

2-3 The program **must** have a written curriculum plan that includes structured clinical experiences and didactic sessions in dentistry and medicine, designed to achieve the goals and objectives or competencies for resident training.

Intent: *The program is expected to organize the didactic and clinical educational experiences into a formal curriculum plan.*

For each specific goal or objective or competency described in response to Standard 2-1, 2-2, and 2-4, the program is expected to develop educational experiences designed to enable the resident to acquire the skills, knowledge, and values necessary in that area. The program is expected to organize these didactic and clinical educational experiences into a formal written curriculum plan.

Examples of evidence to demonstrate compliance may include:
Curriculum plan with educational experiences tied to specific goals and objectives or competencies
Didactic and clinical schedules

2-4 The program **must** provide training to ensure that upon completion of the program, the resident is able to manage the following:

a) medical emergencies;
b) implants;
c) oral mucosal diseases;

d) temporomandibular disorders; and
e) orofacial pain

Intent: *"Manage" is defined in the Definition of Terms on page 9 of this document.*

The program is expected to provide educational instruction, either didactically or clinically, during the program which enhances the resident's ability to manage the above areas.

Examples of evidence to demonstrate compliance may include:
Goals and objectives or competencies for resident training and proficiencies organized by the areas described above
Didactic and clinical schedules
Records of resident clinical activity including procedures performed in each area described above
Patient records
Resident evaluations

2-5 For each assigned rotation or experience in an affiliated institution or extramural facility, there **must** be:

a) objectives that are developed in cooperation with the department chairperson, service chief, or facility director to which the residents are assigned;
b) resident supervision by designated individuals who are familiar with the objectives of the rotation or experience; and
c) evaluations performed by the designated supervisor.

Intent: *This standard is intended to apply to all rotations, whether they take place in the parent institution or an affiliated institution or extramural facility.*

Examples of evidence to demonstrate compliance may include:
Description and schedule of rotations
Objectives of rotations
Resident evaluations

2-6 The program **must** provide formal instruction in physical evaluation and medical assessment, including:

a) taking, recording, and interpreting a complete medical history;
b) understanding the indications of and interpretations of laboratory studies and other techniques used in the diagnosis of oral and systemic diseases;
c) understanding the relationship between oral health care and systemic diseases; and
d) interpreting the physical evaluation performed by a physician with an understanding of how it impacts on proposed dental treatment.

Intent: *Residents should be able to interact appropriately with other health care providers. It is intended that medical assessment be conducted during formal instruction as well as during inpatient, same-day surgery, and ambulatory patient care. The program is expected to define the type of documentation of physical evaluation and medical assessment that is required to be entered into inpatient and ambulatory care records. The program is expected to ensure that such data is being recorded.*

Examples of evidence to demonstrate compliance may include:
Didactic schedules
Course outlines
Resident evaluations

2-7 The program **must** provide instruction in the principles of practice management.

Intent: *Suggested topics include: management of allied dental professionals and other office personnel; quality management; principles of peer review; business management and practice development; principles of professional ethics, jurisprudence and risk management; alternative health care delivery systems; informational technology; and managed care.*

Examples of evidence to demonstrate compliance may include:
Course outlines

2-8 Formal patient care conferences **must** be scheduled at least twelve (12) times a year.

Intent: *Conferences should be distributed throughout the year so that diagnosis, treatment planning, progress, and outcomes can be followed and discussed. These conferences should be attended by residents and faculty and should not replace the daily faculty and resident interactions regarding patient care.*

Examples of evidence to demonstrate compliance may include:
Conference schedules

2-9 Residents **must** be given assignments that require critical review of relevant scientific literature.

Intent: *Residents are expected to have the ability to critically review relevant literature as a foundation for lifelong learning and adapting to changes in oral health care. This should include the development of critical evaluation skills and the ability to apply evidence-based principles to clinical decision-making.*

Examples of evidence to demonstrate compliance may include:
Evidence of experiences requiring literature review

Program Length

2-10 The program **must** be one or two calendar years in length.

Examples of evidence to demonstrate compliance may include:
Program schedules
Curriculum plan

2-11 Programs **must** be designed as either a one-year program, a one-year program with an optional second year or a mandatory two-year program.

Examples of evidence to demonstrate compliance may include:
Second year goals and objectives or competencies for resident training
Curriculum plan
Schedules

2-12 Residents enrolled in the optional second year of training **must** have completed an accredited first year of Advanced Education in General Dentistry or General Practice Residency training at this or another institution.

Examples of evidence to demonstrate compliance may include:
Resident records or certificate

2-13 The goals and objectives or the competencies for resident didactic and clinical training in the optional second year of training **must** be at a higher level than those of the first year of the program.

Examples of evidence to demonstrate compliance may include:
Second year goals and objectives or competencies for resident didactic and clinical training
Curriculum plan

2-14 Where a program for part-time residents exists, it **must** be started and completed within a single institution and designed so that the total curriculum can be completed in no more than two years of study for a one-year program and four years of study for a two-year program.

Intent: *Part-time residents may be enrolled, provided the educational experiences are the same as those acquired by full-time residents and the total time spent is the same.*

Examples of evidence to demonstrate compliance may include:
Description of the part-time program
Documentation of how the part-time residents will achieve similar experiences and skills as full-time residents

Program schedules

Evaluation

2-15 The program's resident evaluation system **must** assure that, through the director and faculty, each program:

a) periodically, but at least three times annually, evaluates and documents the resident's progress towards achieving the goals and objectives or competencies for resident training using appropriate written criteria and procedures;
b) provides residents with an assessment of their performance after each evaluation. Where deficiencies are noted, corrective actions **must** be taken; and
c) maintains a personal record of evaluation for each resident that is accessible to the resident and available for review during site visits.

Intent: *While the program may employ evaluation methods that measure a resident's skills or behavior at a given time, it is expected that the program will, in addition, evaluate the degree to which the resident is making progress toward achieving the specific goals and objectives or competencies for resident training described in response to Standard 2-1, 2-2, 2-3, and 2-4. The final resident evaluation or final measurement of educational outcomes may count as one of the three evaluations.*

Examples of evidence to demonstrate compliance may include:
Evaluation criteria and process
Resident evaluations
Personal record of evaluation for each resident
Evidence that corrective actions have been taken

STANDARD 3 – FACULTY AND STAFF

3-1 The program director **must** have authority and responsibility for all aspects of the program.

Intent: *The program director's responsibilities include:*

a) program administration;
b) development and implementation of the curriculum plan;
c) ongoing evaluation of program content, faculty teaching, and resident performance;
d) evaluation of resident training and supervision in affiliated institutions and off-service rotations;
e) maintenance of records related to the educational program; and
f) resident selection.

It is expected that program directors will devote sufficient time to accomplish the assigned duties and responsibilities. In programs where the program director assigns some duties to other individuals, it is expected that the program will develop a formal plan for such assignments that includes:

1) what duties are assigned;
2) to whom they are assigned; and
3) what systems of communication are in place between the program director and individuals who have been assigned responsibilities.

In those programs where applicants are assigned centrally, responsibility for selection of residents may be delegated to a designee.

Examples of evidence to demonstrate compliance may include:
Program director's job description
Job description of individuals who have been assigned some of the program director's job responsibilities
Formal plan for assignment of program director's job responsibilities as described above
Program records

3-2 Program directors appointed after January 1, 2000, who have not previously served as program directors, **must** have completed an accredited Advanced Education in General Dentistry or General Practice Residency program.

Examples of evidence to demonstrate compliance may include:
Program director's completed BioSketch

3-3 For each off-campus site, there **must** be an on-site clinical supervisor/director who is qualified by education and/or clinical experience in the curriculum areas for which he/she is responsible.

Examples of evidence to demonstrate compliance may include:
Completed BioSketch for on-site clinical supervisor/director
Criteria used to certify a non-specialist faculty member as responsible for a specialty teaching area

3-4 The program **must** be staffed by faculty who are qualified by education and/or clinical experience in the curriculum areas for which they are responsible and have collective competence in all areas of dentistry included in the program.

Intent: *Faculty should have current knowledge at an appropriate level for the curriculum areas for which they are responsible (e.g., the faculty member responsible for endodontics is not required to be an endodontist. Instead, it could be someone with current knowledge and appropriate level of experience in endodontics). The faculty, collectively, should have competence in all areas of dentistry covered in the program.*

The program is expected to develop criteria and qualifications that would enable a faculty member to be responsible for a particular specialty teaching area if that faculty member is not a specialist in that area. The program is expected to evaluate non-specialist faculty members who will be responsible for a particular specialty teaching area and document that they meet the program's criteria and qualifications.

Whenever possible, programs should avail themselves of specialists as trained consultants for the development of a mission and curriculum, and for teaching.

Examples of evidence to demonstrate compliance may include:
Full and part-time faculty rosters
Program and faculty schedules
Completed BioSketch of faculty members
Criteria used to certify a non-specialist faculty member as responsible for a specialty teaching area
Records of program documentation that non-specialist faculty members are responsible for a specialty teaching area

3-5 General dentists **must** have a significant role in program development and instruction.

Intent: *General dentists are expected to be actively involved in developing the curriculum and clinical rotations, as well as in the instruction of the residents.*

Examples of evidence to demonstrate compliance may include:
Faculty meeting minutes
Faculty roster
Departmental policies
Completed BioSketch of faculty members

3-6 A formally defined evaluation process **must** exist that ensures measurements of the performance of faculty members annually.

Intent: *The written annual performance evaluations should be shared with the faculty members.*

Examples of evidence to demonstrate compliance may include:
Faculty files
Performance appraisals

3-7 The program **must** show evidence of an ongoing faculty development process.

Intent: Ongoing faculty development is a requirement to improve teaching and learning, to foster curricular change, to enhance retention and job satisfaction of faculty, and to maintain the vitality of academic dentistry as the wellspring of a learned profession.

Examples of evidence to demonstrate compliance may include:
Participation in development activities related to teaching, learning, and assessment
Attendance at regional and national meetings that address contemporary issues in education and patient care
Mentored experiences for new faculty
Scholarly productivity
Presentations at regional and national meetings
Examples of curriculum innovation
Maintenance of existing and development of new and/or emerging clinical skills
Documented understanding of relevant aspects of teaching methodology
Curriculum design and development
Curriculum evaluation
Resident assessment
Cultural Competency
Ability to work with residents of varying ages and backgrounds
Use of technology in didactic and clinical components of the curriculum
Evidence of participation in continuing education activities

3-8 A faculty member **must** be present in the dental clinic for consultation, supervision and active teaching when residents are treating patients in scheduled clinic sessions.

Intent: *This statement does not preclude the rare situation where a faculty member cannot be available. This Standard applies not only to clinic sessions, but to any location or situation where residents are treating patients in scheduled sessions.*

Examples of evidence to demonstrate compliance may include:
Faculty clinic schedules

3-9 Adequate support staff **must** be consistently available to ensure:

a) residents do not regularly perform the tasks of allied dental personnel and clerical staff,
b) resident training and experience in the use of current concepts of oral health care delivery and
c) efficient administration of the program.

Intent: *This statement is meant to emphasize the importance of a well-balanced dental staff that can help address aspects of the delivery of dentistry and the business of dentistry. The areas that are considered current concepts would be scheduling, insurance, dental assisting, dental hygiene and lab procedures. The program should determine the number and participation of allied support and clerical staff to meet the educational and experiential goals and objectives. Allied support may include dental assistants, dental hygienists, dental laboratory technicians and front desk personnel as needed.*

Examples of evidence to demonstrate compliance may include:
Staff schedules

STANDARD 4 – EDUCATIONAL SUPPORT SERVICES

4-1 The sponsoring institution **must** provide adequate and appropriately maintained facilities and learning resources to support the goals and objectives of the program.

Intent: *The facilities should permit the attainment of program goals and objectives. Residents should have access to equipment and well-equipped operatories in the dental clinic that permit utilization of current concepts of practice. Equipment, current medications and protocols for treating medical emergencies, dental intra-oral and extra-oral radiographic facilities, equipment for managing medical emergencies, and library resources that include dental resources should be available. Equipment for handling medical emergencies and current medications for treating medical emergencies should be readily accessible. "Readily accessible" does not necessarily mean directly in the dental clinic. Protocols for handling medical emergencies should be developed and communicated to all staff in patient care areas.*

Examples of evidence to demonstrate compliance may include:
Description of facilities

Selection of Residents

4-2 Applicants **must** have one of the following qualifications to be eligible to enter the advanced education program in general dentistry:

a) Graduates from a predoctoral dental education program accredited by the Commission on Dental Accreditation;

b) Graduates from a predoctoral dental education program in Canada accredited by the Commission on Dental Accreditation of Canada; and

c) Graduates from an international dental school with equivalent educational background and standing as determined by the institution and program.

4-3 Specific written criteria, policies and procedures **must** be followed when admitting residents.

Intent: *Written non-discriminatory policies are to be followed in selecting residents. These policies should make clear the methods and criteria used in recruiting and selecting residents and how applicants are informed of their status throughout the selection process.*

Examples of evidence to demonstrate compliance may include:
Admission criteria, policies and procedures

4-4 Admission of residents with advanced standing **must** be based on the same standards of achievement required by residents regularly enrolled in the program. Residents with advanced standing **must** receive an appropriate curriculum that results in the same standards of competence required by residents regularly enrolled in the program.

Intent: *Advanced standing refers to applicants that may be considered for admission to a training program whose curriculum has been modified after taking into account the applicant's past experience. Examples include transfer from a similar program at another institution, completion of training at a non-CODA accredited program, or documented practice experience in the given discipline. Acceptance of advanced standing residents will not result in an increase of the program's approved number of enrollees. Applicants for advanced standing are expected to fulfill all of the admission requirements mandated for residents in the conventional program and be held to the same academic standards. Advanced standing residents, to be certified for completion, are expected to demonstrate the same standards of competence as those in the conventional program*

Examples of evidence to demonstrate compliance may include:
Policies and procedures on advanced standing
Results of appropriate qualifying examinations
Course equivalency or other measures to demonstrate equal scope and level of knowledge

4-5 The program's description of the educational experience to be provided must be available to program applicants and include:

a) A description of the educational experience to be provided,
b) A list of goals and objectives or competencies for resident training, and
c) A description of the nature of assignments to other departments or institutions.

Intent: *Programs are expected to make their lists of specific goals and objectives or competencies for resident training developed in response to Standards 2-1, 2-2, 2-3, and 2-4 available to all applicants to the program. This includes applicants who may not personally visit the program and applicants who are deciding which programs to apply to. Materials available to applicants who visit the program in person will not satisfy this requirement. A means of making this information available to individuals who do not visit the program is to be developed.*

Examples of evidence to demonstrate compliance may include:
Brochure or application documents
Description of system for making information available to applicants who do not visit the program

Due Process

4-6 There **must** be specific written due process policies and procedures for adjudication of academic and disciplinary complaints that parallel those established by the sponsoring institution.

Intent: *Adjudication procedures should include institutional policy that provides due process for all individuals who may be potentially involved when actions are contemplated or initiated that could result in dismissal of a resident. Residents should be provided with written information that affirms their obligations and responsibilities to the institution, the program and the faculty. The program information provided to the residents should include, but not necessarily be limited to, information about tuition, stipend or other compensation, vacation and sick leave, practice privileges and other activity outside the educational program, professional liability coverage, due process policy, and current accreditation status of the program.*

Examples of evidence to demonstrate compliance may include:
Policy statements and/or resident contract

Health Services

4-7 Residents, faculty, and appropriate support staff **must** be encouraged to be immunized against and/or tested for infectious diseases, such as mumps, measles, rubella, and hepatitis B prior to contact with patients and/or infectious objects or materials, in an effort to minimize the risk to patients and dental personnel.

Examples of evidence to demonstrate compliance may include:
Immunization policy and procedure documents

STANDARD 5 – PATIENT CARE SERVICES

5-1 The program **must** ensure the availability of adequate clinical patient experiences that afford all residents the opportunity to achieve the program's stated goals and objectives or competencies for resident training.

Examples of evidence to demonstrate compliance may include:
Records of resident clinical activity, including specific details on the variety and type and quantity of cases treated and procedures performed
Description of the method used to monitor the adequacy of patient experiences available to the residents and corrective actions taken if one or more resident is not receiving adequate patient experiences

5-2 Patient records **must** be organized in a manner that facilitates ready access to essential data and be sufficiently legible and organized so that all users can readily interpret the contents.

Intent: *Essential data is defined by the program and based on the information included in the record review process as well as that which meets the multidisciplinary educational needs of the program.*

The program is expected to develop a description of the contents and organization of patient records and a system for reviewing records.

Examples of evidence to demonstrate compliance may include:
Record review plan
Documentation of record review
Patient records

5-3 The program **must** conduct and involve residents in a structured system of continuous quality improvement for patient care.

Intent: *Programs are expected to involve residents in enough quality improvement activities to understand the process and contribute to patient care improvement.*

Examples of evidence to demonstrate compliance may include:
Description of quality improvement process including the role of residents in that process
Quality improvement plan and reports

5-4 All residents, faculty, and support staff involved in the direct provision of patient care **must** be continuously recognized/certified in basic life support procedures, including cardiopulmonary resuscitation.

Intent: ACLS and PALS are not a substitute for BLS certification.

Examples of evidence to demonstrate compliance may include:
Certification/recognition records demonstrating basic life support training or summary log of certification/recognition maintained by the program
Exemption documentation for anyone who is medically or physically unable to perform such services.

5-5 The program **must** document its compliance with the institution's policy and applicable regulations of local, state and federal agencies, including, but not limited to, radiation hygiene and protection, ionizing radiation, hazardous materials, and blood-borne and infectious diseases. Polices **must** provide to all residents, faculty and appropriate support staff and continuously monitored for compliance. Additionally, policies on blood-borne and infectious diseases **must** be made available to applicants for admission and patients.

Intent: The policies on blood-borne and infectious diseases should be made available to applicants for admission and patients should a request to review the policy be made.

Examples of evidence to demonstrate compliance may include:
Infection and biohazard control policies
Radiation policy

5-6 The program's policies **must** ensure that the confidentiality of information pertaining to the health status of each individual patient is strictly maintained.

Examples of evidence to demonstrate compliance may include:
Confidentiality policies

Commission on Dental Accreditation

Accreditation Standards for Advanced Education Programs in General Practice Residency

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Accreditation Standards for Advanced Education Programs in General Practice Residency

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Mission Statement of the Commission on Dental Accreditation

The Commission on Dental Accreditation serves the public and profession by developing and implementing accreditation standards that promote and monitor the continuous quality and improvement of dental education programs.

Commission on Dental Accreditation
Adopted: August 5, 2016

ACCREDITATION STATUS DEFINITIONS

Programs That Are Fully Operational

Approval *(without reporting requirements)*: An accreditation classification granted to an educational program indicating that the program achieves or exceeds the basic requirements for accreditation.

Approval (with reporting requirements): An accreditation classification granted to an educational program indicating that specific deficiencies or weaknesses exist in one or more areas of the program. Evidence of compliance with the cited standards must be demonstrated within eighteen (18) months if the program is between one and two years in length or two years if the program is at least two years in length. If the deficiencies are not corrected within the specified time period, accreditation will be withdrawn, unless the Commission extends the period for achieving compliance for good cause. Identification of new deficiencies during the reporting time period will not result in a modification of the specified deadline for compliance with prior deficiencies.

Circumstances under which an extension for good cause would be granted include, but are not limited to:

- sudden changes in institutional commitment;
- natural disaster which affects affiliated agreements between institutions; faculty support; or facilities;
- changes in institutional accreditation;
- interruption of an educational program due to unforeseen circumstances that take faculty, administrators or students away from the program.

Programs That Are Not Fully Operational

A program which has not enrolled and graduated at least one class of students/residents and does not have students/residents enrolled in each year of the program is defined by the Commission as not fully operational. The accreditation classification granted by the Commission on Dental Accreditation to programs which are not fully operational is "initial accreditation." When initial accreditation status is granted to a developing education program, it is in effect through the projected enrollment date. However, if enrollment of the first class is delayed for two consecutive years following the projected enrollment date, the program's accreditation will be discontinued, and the institution must reapply for initial accreditation and update pertinent information on program development. Following this, the Commission will reconsider granting initial accreditation status.

Initial Accreditation is the accreditation classification granted to any dental, advanced dental or allied dental education program which is not yet fully operational. This accreditation classification provides evidence to educational institutions, licensing bodies, government or other granting agencies that, at the time of initial evaluation(s), the developing education program has the potential for meeting the standards set forth in the requirements for an accredited educational program for the specific occupational area. The classification "initial accreditation" is granted based upon one or more site evaluation visit(s).

Introduction

This document constitutes the standards by which the Commission on Dental Accreditation and its consultants evaluate Advanced Education Programs in General Practice Residency for accreditation purposes. It also serves as a program development guide for institutions that wish to establish new programs or improve existing programs.

The standards identify those aspects of program structure and operation that the Commission regards as essential to program quality and achievement of program goals. They specify the minimum acceptable requirements for programs and provide guidance regarding alternative and preferred methods of meeting standards.

Although the standards are comprehensive and applicable to all institutions that offer post-doctoral general dentistry programs, the Commission recognizes that methods of achieving standards may vary according to the size, type, and resources of sponsoring institutions. Innovation and experimentation with alternative ways of providing required training are encouraged, assuming standards are met and compliance can be demonstrated. The Commission has an obligation to the public, the profession, and the prospective resident to assure that programs accredited as Advanced Education Programs in General Practice Residency provide an identifiable and characteristic core of required training and experience.

Goals

Advanced Education Programs in General Practice Residency are educational programs designed to provide training beyond the level of pre-doctoral education in oral health care, using applied basic and behavioral sciences. Education in these programs is based on the concept that oral health is an integral and interactive part of total health. The programs are designed to expand the scope and depth of the graduates' knowledge and skills to enable them to provide comprehensive oral health care to a wide range of population groups.

The goals of these programs should include preparation of the graduate to:

1. Act as a primary care provider for individuals and groups of patients. This includes: providing emergency and multidisciplinary comprehensive oral health care; providing patient focused care that is coordinated by the general practitioner; and directing health promotion and disease prevention activities.
2. Plan and provide multidisciplinary oral health care for a wide variety of patients including patients with special needs.
3. Manage the delivery of oral health care by applying concepts of patient and practice management and quality improvement that are responsive to a dynamic health care environment.
4. Function effectively within the hospital and other health care environments.
5. Function effectively within interdisciplinary health care teams.
6. Apply scientific principles to learning and oral health care. This includes using critical thinking, evidence or outcomes-based clinical decision-making, and technology-based information retrieval systems.
7. Utilize the values of professional ethics, lifelong learning, patient centered care, adaptability, and acceptance of cultural diversity in professional practice.
8. Understand the oral health needs of communities and engage in community service.

Accreditation of One-Year and Two-Year GPR Programs

The Commission on Dental Accreditation will accredit the following types of General Practice Residency (GPR) programs: one-year programs, one-year programs with an optional second year of training where residents enroll for the second year of training during the first year, and two-year programs where residents enroll for two years at the beginning of the program. For programs offering an optional second year of training, accreditation of the program will be continued whether or not a resident is enrolled each year for the second year of training as long as there is enrollment of residents in the program's first year.

The addition of an optional second year of training to an existing one-year program will be considered as a major change to that program rather than as the development of a separate new program. Programs wishing to add an optional second year of training should contact Commission staff to acquire the appropriate forms for reporting a major change.

Definitions of Terms

Key terms used in this document (i.e., must, should, could, and may) were selected carefully and indicate the relative weight that the Commission attaches to each statement. The definition of these words as used in the Standards follows:

Competencies: Written statements describing the levels of knowledge, skills, and values expected of residents completing the program.

Competent: The level of knowledge, skills, and values required by residents to perform independently an aspect of dental practice after completing the program.

Examples of evidence to demonstrate compliance include: Desirable condition, practice or documentation indicating the freedom or liberty to follow a suggested alternative.

Goals and Objectives:

> **Program**: Educational goals that describe what the resident will be able to do upon completion of the program. These should describe the resident's abilities rather than the educational experiences they participate in.
>
> **Resident Training**: Educational goals describing the levels of knowledge, skills and values attained when a particular activity is accomplished.

HIPAA: Health Insurance Portability and Accountability Act

Intent: Intent statements are presented to provide clarification to the advanced education programs in general dentistry in the application of and in connection with compliance with the Accreditation Standards for Advanced Education Programs in General Practice Residency. The statements of intent set forth some of the reasons and purposes for the particular Standards. As such, these statements are not exclusive or exhaustive. Other purposes may apply.

Interdisciplinary: Including dentistry and other health care professions.

Manage: Coordinate the delivery of care using a patient-focused approach within the scope of their training. Patient-focused care should include concepts related to the patient's social, cultural, behavioral, economic, medical and physical status.

May or could: Indicates freedom or liberty to follow a suggested alternative.

Mirrored Patient Records: Records of actual patients prepared solely for training purposes.

Multidisciplinary: Including general dentistry and specialty disciplines within the profession of dentistry.

Must: Indicates an imperative or duty; an essential or indispensable item; mandatory.

Patients with special needs: Those patients whose medical, physical, psychological, or social situations make it necessary to modify normal dental routines in order to provide dental treatment for that individual. These individuals include, but are not limited to, people with developmental disabilities, complex medical problems, and significant physical limitations.

Should: Indicates a suggested way to meet the standard; highly desirable, but not mandatory.

Sponsor: The institution that has the overall administrative control and responsibility for the conduct of the program.

Resident: The individual enrolled in a Commission on Dental Accreditation-accredited postdoctoral general dentistry education program.

STANDARD 1 – INSTITUTIONAL AND PROGRAM EFFECTIVENESS

1-1 The program **must** be sponsored or co-sponsored by either a United States-based hospital, or educational institution or health care organization that is affiliated with an accredited hospital. Each sponsoring and co-sponsoring institution **must** be accredited by an agency recognized by the United States Department of Education or accredited by an accreditation organization recognized by the Centers for Medicare and Medicaid Services (CMS).

United States military programs not sponsored or co-sponsored by military medical treatment facilities, United States-based educational institutions, hospitals or health care organizations accredited by an agency recognized by the United States Department of Education or accredited by an accreditation organization recognized by the Centers for Medicare and Medicaid Services (CMS) **must** demonstrate successful achievement of Service-specific organizational inspection criteria.

Examples of evidence to demonstrate compliance may include:
Accreditation certificate or current official listing of accredited institutions
Evidence of successful achievement of Service-specific organizational inspection criteria

1-2 The sponsoring institution **must** ensure that support from entities outside of the institution does not compromise the teaching, clinical and research components of the program.

Examples of evidence to demonstrate compliance may include:
Written agreement(s)
Contract(s)/Agreement(s) between the institution/program and sponsor(s) related to facilities, funding, and faculty financial support

1-3 The authority and final responsibility for curriculum development and approval, resident selection, faculty selection and administrative matters **must** rest within the sponsoring institution.

1-4 The financial resources **must** be sufficient to support the program's stated purpose/mission, goals and objectives.

Examples of evidence to demonstrate compliance may include:
Program budgetary records
Budget information for previous, current and ensuing fiscal year

1-5 All arrangements with co-sponsoring, affiliated institutions, or extramural facilities **must** be formalized by means of current written agreements that clearly define the roles and responsibilities of the parties involved.

Intent: *Institutions include entities such as private practices. The items that are covered in inter-institutional agreements do not have to be contained in a single document. They may*

be included in multiple agreements, both formal and informal (e.g., addenda and letters of mutual understanding). Affiliated institutions or extramural facilities where only didactic instruction is provided are exempt.

Examples of evidence to demonstrate compliance may include:
Written agreements

1-6 The medical staff bylaws, rules, and regulations of the sponsoring, co-sponsoring, or affiliated hospital **must** ensure that dental staff members are eligible for medical staff membership and privileges including the right to:

a) vote and hold office;
b) serve on medical staff committees; and
c) manage patients.

Intent: *Dental staff members have the same rights and privileges as other medical staff of the sponsoring, co-sponsoring or affiliated hospital, within the scope of practice.*

Examples of evidence to demonstrate compliance may include:
All hospital bylaws related to a, b, and c.
Copy of institutional committee structure and/or roster of membership by dental faculty

1-7 Dental residents **must** be appointed to the house staff of the sponsoring, co-sponsoring, or affiliated hospital and have the same privileges and responsibilities provided residents in other professional education programs.

Examples of evidence to demonstrate compliance may include:
House staff roster
Related hospital bylaws

1-8 The program **must** develop overall program goals and objectives that emphasize:

a) general dentistry,
b) resident education,
c) patient care, and
d) community service and

include training residents to provide oral health care in a hospital setting.

Intent: *The "program" refers to the General Practice Residency that is responsible for training residents within the context of providing patient care. The overall goals and objectives for resident education are intended to describe general outcomes of the residency training program rather than specific learning objectives for areas of residency training as described in Standards 2-1, 2-2, 2-3 and 2-4. Specific learning objectives for residents are intended to be described as goals and objectives or competencies for resident training and included in the response to Standards 2-1, 2-2,*

2-3, and 2-4. An example of overall goals can be found in the Goals section on page 8 of this document.

The program is expected to define community service within the institution's developed goals and objectives.

Examples of evidence to demonstrate compliance may include:
Overall program goals and objectives

1-9 The program **must** have a formal and ongoing outcomes assessment process that regularly evaluates the degree to which the program's stated goals and objectives are being met and make program improvements based on an analysis of that data.

Intent: *The intent of the outcomes assessment process is to collect data about the degree to which the overall goals and objectives described in response to Standard 1-8 are being met.*

The outcomes process developed should include each of the following steps:

1. *development of clear, measurable goals and objectives consistent with the program's purpose/mission;*
2. *implementation of procedures for evaluating the extent to which the goals and objectives are met;*
3. *collection of data in an ongoing and systematic manner;*
4. *analysis of the data collected and sharing of the results with appropriate audiences;*
5. *identification and implementation of corrective actions to strengthen the program; and*
6. *review of the assessment plan, revision as appropriate, and continuation of the cyclical process.*

Examples of evidence to demonstrate compliance may include:
Program goals and objectives
Outcomes assessment plan and measures
Outcomes results
Annual review of outcomes results
Meeting minutes where outcomes are discussed
Decisions based on outcomes results

Ethics and Professionalism

1-10 The program **must** ensure that residents are able to demonstrate the application of the principles of ethical reasoning, ethical decision making and professional responsibility as they pertain to the academic environment, research, patient care, and practice management.

Intent: *Residents should know how to draw on a range of resources such as professional codes, regulatory law, and ethical theories to guide judgment and action for issues that are complex, novel, ethically arguable, divisive, or of public concern.*

STANDARD 2 – EDUCATIONAL PROGRAM

Curriculum Content

2-1 The program **must** provide didactic and clinical training to ensure that upon completion of training, the resident is able to:

a) Act as a primary oral health care provider to include:
   1) providing emergency and multidisciplinary comprehensive oral health care;
   2) obtaining informed consent;
   3) functioning effectively within interdisciplinary health care teams, including consultation and referral;
   4) providing patient-focused care that is coordinated by the general practitioner; and
   5) directing health promotion and disease prevention activities.

b) Assess, diagnose, and plan for the provision of multidisciplinary oral health care for a wide variety of patients including patients with special needs.

c) Manage the delivery of patient-focused oral health care.

Intent: *"Patients with special needs" is defined in the Definition of Terms on page 10 of this document.*

Patient-focused care should include concepts related to the patient's social, cultural, behavioral, economic, medical and physical status.

Examples of evidence to demonstrate compliance may include:
Goals and objectives or competencies for resident training organized by the areas described above
Didactic and clinical schedules
Resident evaluations
Documentation of treatment planning sessions
Documentation of chart reviews
Records of resident clinical activity including procedures performed in each area described above
Documentation of case simulations

2-2 The program **must** have goals and objectives or competencies for resident training and provide didactic and clinical training to ensure that upon completion of training the resident is able to provide the following at an advanced level of skill and/or case complexity beyond that accomplished in pre-doctoral training:

a) operative dentistry;
b) restoration of the edentulous space;

c) periodontal therapy;
d) endodontic therapy;
e) oral surgery;
f) evaluation and treatment of dental emergencies; and
g) pain and anxiety control utilizing behavioral and/or pharmacological techniques.

Intent: *Determination of "complexity beyond that accomplished in a pre-doctoral training" may be from various aspects including, but not limited to: depth of topic discussion, variety of topic/procedures, quantity of topics/procedures, underlying medical/health considerations related to delivery of topic/procedures, etc.*

Examples of evidence to demonstrate compliance may include:
Goals and objectives or competencies for resident training organized by the areas described above
Didactic and clinical schedules
Records of resident clinical activity including procedures performed in each area described above
Patient records
Resident evaluations

2-3 The program **must** have a written curriculum plan that includes structured clinical experiences and didactic sessions in dentistry and medicine, designed to achieve the goals and objectives or competencies for resident training.

Intent: *The program is expected to organize the didactic and clinical educational experience into a formal curriculum plan.*

For each specific goal or objective or competency described in response to Standard 2-1, 2-2, and 2-4, the program is expected to develop educational experiences designed to enable the resident to acquire the skills, knowledge, and values necessary in that area. The program is expected to organize these didactic and clinical educational experiences into a formal written curriculum plan.

Examples of evidence to demonstrate compliance may include:
Curriculum plan with educational experiences tied to specific goals and objectives or competencies
Didactic and clinical schedules

2-4 The program **must** provide training to ensure that upon completion of the program, the resident is able to manage the following:

a) medical emergencies;
b) implants;

c) oral mucosal diseases;
d) temporomandibular disorder, and
e) orofacial pain.

Intent: *"Manage" is defined in the Definition of Terms on page 9 of this document.*

The program is expected to provide educational instruction, either didactically or clinically, during the program which enhances the resident's ability to manage the above areas.

Examples of evidence to demonstrate compliance may include:
Goals and objectives or competencies for resident training organized by the areas described above
Didactic and clinical schedules
Records of resident clinical activity including procedures performed in each area described above
Patient records
Resident evaluations

2-5 Residents **must** be assigned to an anesthesia rotation with supervised practical experience in the following:

a) preoperative evaluation;
b) assessment of the effects of behavioral and pharmacologic techniques;
c) venipuncture technique;
d) patient monitoring;
e) airway management;
f) understanding of the use of pharmacologic agents;
g) recognition and treatment of anesthetic emergencies; and
h) assessment of patient recovery from anesthesia.

Intent: *Program directors should interact with the anesthesia department to determine the rotation length and methods necessary to meet the requirements of the standard. Generally a minimum of 70 hours is considered to provide the appropriate practical experience.*

Examples of evidence to demonstrate compliance may include:
Rotation objectives
Rotation schedules including supervising faculty
Resident evaluations

2-6 Residents **must** be assigned to a rotation in medicine that has supervised practical experiences, to include:

a) obtaining and interpreting the patient's chief complaint, medical, and social history, and review of systems;
b) obtaining and interpreting clinical and other diagnostic data from other health care providers;
c) using the services of clinical, medical, and pathology laboratories; and
d) performing a history and physical evaluation and collect other data in order to establish a medical assessment.

Intent: *Program directors should interact with the relevant department to determine the rotation length and methods necessary to meet the requirements of the standard. Ideally, this rotation should be in a primary care setting. However, other medical settings that provide this experience are acceptable. Generally a minimum of 70 hours is considered to provide the appropriate practical experience.*

Examples of evidence to demonstrate compliance may include:
Rotation objectives
Rotation schedules including supervising faculty
Resident evaluations

2-7 The program **must** provide formal instruction in physical evaluation and medical assessment, including:

a) taking, recording, and interpreting a complete medical history;
b) understanding the indications of and interpretations of laboratory studies and other techniques used in the diagnosis of oral and systemic diseases;
c) understanding the relationship between oral health care and systemic diseases; and
d) interpreting the physical evaluation performed by a physician with an understanding of how it impacts on proposed dental treatment.

Intent: *Residents should be able to interact appropriately with other health care providers. It is intended that medical assessment be conducted during formal instruction as well as during in-patient, same day surgery, and ambulatory patient care. The program is expected to define the type of documentation of physical evaluation and medical assessment that is required to be entered into inpatient and ambulatory care records. The program is expected to ensure that such data is being recorded.*

Examples of evidence to demonstrate compliance may include:
Didactic schedules
Course outlines
Resident evaluations

2-8 For each assigned rotation, or experience in an affiliated institution or extramural facility, there **must** be:

a) objectives that are developed in cooperation with the department chairperson, service chief, or facility director to which the residents are assigned;
b) resident supervision by designated individuals who are familiar with the objectives of the rotation or experience; and
c) evaluations performed by the designated supervisor.

Intent: *This standard is intended to apply to all rotations, whether they take place in the parent institution or an affiliated institution or extramural facility.*

Examples of evidence to demonstrate compliance may include:
Description and schedule of rotations
Objectives of rotations
Resident evaluations

2-9 The program **must** provide instruction in the principles of practice management.

Intent: *Suggested topics include: management of allied dental professionals and other office personnel; quality management; principles of peer review; business management and practice development; principles of professional ethics, jurisprudence and risk management; alternative health care delivery systems; informational technology; and managed care.*

Examples of evidence to demonstrate compliance may include:
Course outlines

2-10 The program **must** provide residents with an understanding of hospital organization, functioning, and credentialing process.

Intent: *Information about the credentialing process, application for privileges, and hospital records protocol is expected to be included in the curriculum.*

Examples of evidence to demonstrate compliance may include:
Didactic schedules

2-11 Residents **must** receive training and experience in the management of inpatients or same-day surgery patients, including:

a) reviewing medical histories and physical examinations;
b) prescribing treatment and medication;
c) providing care in the operating room; and
d) preparing the patient record, including notation of medical history, review of physical examination, pre- and post-operative orders, and description of surgical procedures.

Intent: *These experiences should occur in conjunction with patients receiving dental care in the hospital operating room, ambulatory surgery clinic, same-day surgery*

clinic, or a free-standing surgical center. Where this is not possible, the experiences may occur on other services providing care in the same settings. Clinical experiences are expected to be supervised by an attending faculty member.

Examples of evidence to demonstrate compliance may include:
Evidence of resident participation in the activities listed above and evidence of attending faculty supervision (for example, patient records, mirrored patient records, co-signature on chart notes, coverage schedule, or attending notes)
Record review policy
Documentation of record review

2-12 Formal patient care conferences **must** be scheduled at least twelve (12) times a year.

Intent: *Conferences should be distributed throughout the year so that diagnosis, treatment planning, progress, and outcomes can be followed and discussed. These conferences should be attended by residents and faculty and should not replace the daily faculty and resident interactions regarding patient care.*

Examples of evidence to demonstrate compliance may include:
Conference schedules

2-13 Residents **must** be given assignments that require critical review of relevant scientific literature.

Intent: *Residents are expected to have the ability to critically review relevant literature as a foundation for lifelong learning and adapting to changes in oral health care. This should include the development of critical evaluation skills and the ability to apply evidence-based principles to clinical decision-making.*

Examples of evidence to demonstrate compliance may include:
Evidence of experiences requiring literature review

Program Length

2-14 The program **must** be one or two calendar years in length.

Examples of evidence to demonstrate compliance may include:
Program schedules
Curriculum plan

2-15 Programs **must** be designed as either a one-year program, a one-year program with an optional second year or a mandatory two-year program.

Examples of evidence to demonstrate compliance may include:
Second year goals and objectives or competencies for resident training
Curriculum plan
Schedules

2-16 Residents enrolled in the optional second year of training **must** have completed an accredited first year of General Practice Residency or Advanced Education in General Dentistry training at this or another institution.

Examples of evidence to demonstrate compliance may include:
Resident records or certificate

2-17 The goals and objectives or the competencies for resident didactic and clinical training in the optional second year of training **must** be at a higher level than those of the first year of the program.

Examples of evidence to demonstrate compliance may include:
Second year goals and objectives or competencies for resident didactic and clinical training
Curriculum plan

2-18 Where a program for part-time residents exists, it **must** be started and completed within a single institution and designed so that the total curriculum can be completed in no more than two years of study for a one-year program and four years of study for a two-year program.

Intent: *Part-time residents may be enrolled, provided the educational experiences are the same as those acquired by full-time residents and the total time spent is the same.*

Examples of evidence to demonstrate compliance may include:
Description of the part-time program
Documentation of how the part-time residents will achieve similar experiences and skills as full-time residents
Program schedules

Evaluation

2-19 The program's resident evaluation system **must** assure that, through the director and faculty, each program:

a) periodically, but at least three times annually, evaluates and documents the resident's progress towards achieving the goals and objectives or competencies for resident training using appropriate written criteria and procedures;
b) provides residents with an assessment of their performance after each evaluation. Where deficiencies are noted, corrective actions must be taken; and

c) maintains a personal record of evaluation for each resident that is accessible to the resident and available for review during site visits.

Intent: *While the program may employ evaluation methods that measure a resident's skills or behavior at a given time, it is expected that the program will, in addition, evaluate the degree to which the resident is making progress toward achieving the specific goals and objectives or competencies for resident training described in response to Standard 2-1, 2-2, 2-3, and 2-4. The final resident evaluation or final measurement of educational outcomes may count as one of the three evaluations.*

Examples of evidence to demonstrate compliance may include:
Evaluation criteria and process
Resident evaluations
Personal record of evaluation for each resident
Evidence that corrective actions have been taken

STANDARD 3 – FACULTY AND STAFF

3-1 The program director **must** have authority and responsibility for all aspects of the program.

Intent: *The program director's responsibilities include:*

a) program administration;
b) development and implementation of the curriculum plan;
c) ongoing evaluation of program content, faculty teaching and resident performance;
d) evaluation of resident training and supervision in affiliated institutions and off-services rotations;
e) maintenance of records related to the educational program; and
f) resident selection.

It is expected that program directors will devote sufficient time to accomplish the assigned duties and responsibilities. In programs where the program director assigns some duties to other individuals, it is expected that the program will develop a formal plan for such assignments that includes:

1) what duties are assigned,
2) to whom they are assigned, and
3) what systems of communication are in place between the program director and individuals who have been assigned responsibilities.

In those programs where applicants are assigned centrally, responsibility for selection of residents may be delegated to a designee.

Examples of evidence to demonstrate compliance may include:
Program director's job description
Job description of individuals who have been assigned some of the program director's job responsibilities
Formal plan for assignment of program director's job responsibilities as described above
Program records

3-2 Program directors appointed after January 1, 2000, who have not previously served as program directors, **must** have completed an accredited General Practice Residency program or Advanced Education in General Dentistry program.

Examples of evidence to demonstrate compliance may include:
Program director's completed BioSketch

3-3 For each off-campus site, there must be an on-site clinical supervisor/director who is qualified by education and/or clinical experience in the curriculum areas for which he/she is responsible.

Examples of evidence to demonstrate compliance may include:
Completed BioSketch for on-site clinical supervisor/director
Criteria used to certify a non-specialist faculty member as responsible for a specialty teaching area

3-4 The program **must** be staffed by faculty who are qualified by education and/or clinical experience in the curriculum areas for which they are responsible and have collective competence in all areas of dentistry included in the program.

Intent: *Faculty should have current knowledge at an appropriate level for the curriculum areas for which they are responsible (e.g., the faculty member responsible for endodontics is not required to be an endodontist. Instead, it could be someone with current knowledge and appropriate level of experience in endodontics). The faculty, collectively, should have competence in all areas of dentistry covered in the program.*

The program is expected to develop criteria and qualifications that would enable a faculty member to be responsible for a particular specialty teaching area if that faculty member is not a specialist in that area. The program is expected to evaluate non-specialist faculty members who will be responsible for a particular specialty teaching area and document that they meet the program's criteria and qualifications.

Whenever possible, programs should avail themselves of specialists as trained consultants for the development of a mission and curriculum, and for teaching.

Examples of evidence to demonstrate compliance may include:
Full and part-time faculty rosters
Program and faculty schedules
Completed BioSketch of faculty members
Criteria used to certify a non-specialist faculty member as responsible for a specialty teaching area
Records of program documentation that non-specialist faculty members as responsible for a specialty teaching area

3-5 General dentists **must** have a significant role in program development and instruction.

Intent: *General dentists are expected to be actively involved in developing the curriculum and clinical rotations, as well as in the instruction of the residents.*

Examples of evidence to demonstrate compliance may include:
Faculty meeting minutes
Faculty roster
Departmental policies
Completed BioSketch of faculty members

3-6 A formally defined evaluation process **must** exist that ensures measurement of the performance of faculty members annually.

Intent: *The written annual performance evaluations should be shared with the faculty members.*

Examples of evidence to demonstrate compliance may include:
Faculty files
Performance appraisals

3-7 The program **must** show evidence of an ongoing faculty development process.

Intent: Ongoing faculty development is a requirement to improve teaching and learning, to foster curricular change, to enhance retention and job satisfaction of faculty, and to maintain the vitality of academic dentistry as the wellspring of a learned profession.

Examples of evidence to demonstrate compliance may include:
Participation in development activities related to teaching, learning, and assessment
Attendance at regional and national meetings that address contemporary issues in education and patient care
Mentored experiences for new faculty
Scholarly productivity
Presentations at regional and national meetings
Examples of curriculum innovation
Maintenance of existing and development of new and/or emerging clinical skills
Documented understanding of relevant aspects of teaching methodology
Curriculum design and development
Curriculum evaluation
Resident assessment
Cultural Competency
Ability to work with residents of varying ages and backgrounds
Use of technology in didactic and clinical components of the curriculum
Evidence of participation in continuing education activities

3-8 A faculty member **must** be present in the dental clinic for consultation, supervision and active teaching when residents are treating patients in scheduled clinic sessions.

Intent: *This statement does not preclude the rare situation where a faculty member cannot be available. This Standard applies not only to clinic sessions, but to any location or situation where residents are treating patients in scheduled sessions.*

Examples of evidence to demonstrate compliance may include:
Faculty clinic schedules

3-9 Adequate support staff **must** be consistently available to ensure:

a) residents do not regularly perform the tasks of allied dental personnel and clerical staff,
b) resident training and experience in the use of current concepts of oral health care delivery and
c) efficient administration of the program.

Intent: *This statement is meant to emphasize the importance of a well-balanced dental staff that can help address aspects of the delivery of dentistry and the business of dentistry. The areas that are considered current concepts would be scheduling, insurance, dental assisting, dental hygiene and lab procedures. The program should determine the number and participation of allied support and clerical staff to meet the educational and experiential goals and objectives. Allied support may include dental assistants, dental hygienists, dental laboratory technicians and front desk personnel as needed.*

Examples of evidence to demonstrate compliance may include:
Staff schedules

STANDARD 4 – EDUCATIONAL SUPPORT SERVICES

4-1 The sponsoring institution **must** provide adequate and appropriately maintained facilities and learning resources to support the goals and objectives of the program.

Intent: *The facilities should permit the attainment of program goals and objectives. Residents should have access to equipment and well-equipped operatories in the dental clinic that permit utilization of current concepts of practice. Equipment, current medications and protocols for treating medical emergencies, dental intra-oral and extra-oral radiographic facilities, equipment for managing medical emergencies, and library resources that include dental resources should be available. Equipment for handling medical emergencies and current medications for treating medical emergencies should be readily accessible. "Readily accessible" does not necessarily mean directly in the dental clinic. Protocols for handling medical emergencies should be developed and communicated to all staff in patient care areas.*

Examples of evidence to demonstrate compliance may include:
Description of facilities

Selection of Residents

4-2 Applicants **must** have one of the following qualifications to be eligible to enter the general practice residency program:

a) Graduates from a predoctoral dental education program accredited by the Commission on Dental Accreditation;

b) Graduates from a predoctoral dental education program in Canada accredited by the Commission on Dental Accreditation of Canada; and

c) Graduates from an international dental school with equivalent educational background and standing as determined by the institution and program.

4-3 Specific written criteria, policies and procedures **must** be followed when admitting residents.

Intent: *Written non-discriminatory policies are to be followed in selecting residents. These policies should make clear the methods and criteria used in recruiting and selecting residents and how applicants are informed of their status throughout the selection process.*

Examples of evidence to demonstrate compliance may include:
Admission criteria, policies and procedures

4-4 Admission of residents with advanced standing **must** be based on the same standards of achievement required by residents regularly enrolled in the program. Residents with

advanced standing **must** receive an appropriate curriculum that results in the same standards of competence required by residents regularly enrolled in the program.

Intent: *Advanced standing refers to applicants that may be considered for admission to a training program whose curriculum has been modified after taking into account the applicant's past experience. Examples include transfer from a similar program at another institution, completion of training at a non-CODA accredited program, or documented practice experience in the given discipline. Acceptance of advanced standing residents will not result in an increase of the program's approved number of enrollees. Applicants for advanced standing are expected to fulfill all of the admission requirements mandated for residents in the conventional program and be held to the same academic standards. Advanced standing residents, to be certified for completion, are expected to demonstrate the same standards of competence as those in the conventional program.*

Examples of evidence to demonstrate compliance may include:
Policies and procedures on advanced standing
Results of appropriate qualifying examinations
Course equivalency or other measures to demonstrate equal scope and level of knowledge

4-5 The program's description of the educational experience to be provided **must** be available to program applicants and include:

a) A description of the educational experience to be provided,
b) A list of goals and objectives or competencies for resident training, and
c) A description of the nature of assignments to other departments or institutions.

Intent: *Programs are expected to make their lists of specific goals and objectives or competencies for resident training developed in response to Standards 2-1, 2-2, 2-3, and 2-4 available to all applicants to the program. This includes applicants who may not personally visit the program and applicants who are deciding which programs to apply to. Materials available to applicants who visit the program in person will not satisfy this requirement. A means of making this information available to individuals who do not visit the program is to be developed.*

Examples of evidence to demonstrate compliance may include:
Brochure or application documents
Description of system for making information available to applicants who do not visit the program

Due Process

4-6 There **must** be specific written due process policies and procedures for adjudication of academic and disciplinary complaints that parallel those established by the sponsoring institution.

Intent: *Adjudication procedures should include institutional policy that provides due process for all individuals who may potentially be involved when actions are contemplated or initiated that could result in dismissal of a resident. Residents should be provided with written information that affirms their obligations and responsibilities to the institution, the program, and the faculty. The program information provided to the resident should include, but not necessarily be limited to, information about tuition, stipend or other compensation, vacation and sick leave, practice privileges and other activity outside the educational program, professional liability coverage, due process policy, and current accreditation status of the program.*

Examples of evidence to demonstrate compliance may include:
Policy statements and/or resident contract

Health Services

4-7 Residents, faculty and appropriate support staff **must** be encouraged to be immunized against and/or tested for infectious diseases, such as mumps, measles, rubella and hepatitis B, prior to contact with patients and/or infectious objects or materials, in an effort to minimize the risk of patients and dental personnel.

Examples of evidence to demonstrate compliance may include:
Immunization policy and procedure documents

STANDARD 5 – PATIENT CARE SERVICES

5-1 The program **must** ensure the availability of adequate clinical patient experiences that afford all residents the opportunity to achieve the program's stated goals and objectives or competencies for resident training.

Examples of evidence to demonstrate compliance may include:
Records of resident clinical activity, including specific details of the variety and type and quantity of cases treated and procedures performed
Description of the method used to monitor the adequacy of patient experiences available to the residents and corrective actions taken if one or more resident is not receiving adequate patient experiences

5-2 Patient records **must** be organized in a manner that facilitates ready access to essential data and be sufficiently legible and organized so that all users can readily interpret the contents.

Intent: *Essential data is defined by the program and based on the information included in the record review process as well as that which meets the multidisciplinary educational needs of the program.*

The program is expected to develop a description of the contents and organization of patient records and a system for reviewing records.

Examples of evidence to demonstrate compliance may include:
Patient records
Record review plan
Documentation of record reviews

5-3 The program **must** conduct and involve residents in a structured system of continuous quality improvement for patient care.

Intent: *Programs are expected to involve residents in enough quality improvement activities to understand the process and contribute to patient care improvement.*

Examples of evidence to demonstrate compliance may include:
Description of quality improvement process including the role of residents in that process
Quality improvement plan and reports

5-4 All residents, faculty and support staff involved in the direct provision of patient care **must** be continuously recognized/certified in basic life support procedures, including cardiopulmonary resuscitation.

Intent: *ACLS and PALS are not a substitute for BLS certification.*

Examples of evidence to demonstrate compliance may include:
Certification/recognition records demonstrating basic life support training or summary log of certification/recognition maintained by the program
Exemption documentation for anyone who is medically or physically unable to perform such services

5-5 The program **must** document its compliance with the institution's policy and applicable regulations of local, state and federal agencies, including, but not limited to, radiation hygiene and protection, ionizing radiation, hazardous materials, and blood-borne and infectious diseases. Policies **must** be provided to all residents, faculty and appropriate support staff and continuously monitored for compliance. Additionally, policies on blood-borne and infectious diseases **must** be made available to applicants for admission and patients.

Intent: *The policies on blood-borne and infectious diseases should be made available to applicants for admission and patients should a request to review the policy be made.*

Examples of evidence to demonstrate compliance may include:
Infection and biohazard control policies
Radiation policy

5-6 The program's policies **must** ensure that the confidentially of information pertaining to the health status of each individual patient is strictly maintained.

Examples of evidence to demonstrate compliance may include:
Confidentiality policies

The Board will accept completion of a PGY-1 residency (a CODA-accredited residency that was at least one year long and occurred in a hospital or dental facility) in lieu of clinical examination.

ADA's Development of OSCE for Dental Licensure

Background:
On March 10, 2017, the Board reaffirmed its position of requiring live patient exams for licensure.

During the mid-year AADB meeting in April 2017, an ADA paper, Talking Points for State Dental Societies, was reviewed and discussed. The paper lists the factors that led the ADA to authorize development of a national Objective Structured Clinical Exam (OSCE) for Dental Licensure by the Council on Dental Education and Licensure with the purpose of eliminating the use of patients in licensure exams.

Documents Attached:

- ADA's Talking Points
- An excerpt from the ADA's Bylaws addressing clinical examinations
- AADB's letter to the ADA requesting reconsideration of developing an OSCE
- Iowa Dental Board's letter to the ADA requesting the evidence which supports the Talking Points
- Discussion draft for adding "patient-based" to regulatory requirements for clinical competency examinations.

Board Action:
Consider adoption of a letter to be sent to the ADA

Talking Points for State Dental Societies
Recent action by the ADA Board of Trustees to authorize development of an Objective Structured Clinical Exam (OSCE) for dental licensure.

The ADA Department of Testing Services was tasked with developing a business plan for development and implementation of an OSCE by the Council on Dental Education and Licensure (CDEL) in accord with long-standing and current ADA policies, including the policy, "Eliminating the Use of Patients in Board Examinations (trans 2005:335; 2013:351). The Council carefully reviewed and supported the plan at its December 2016 meeting and recommended that the Board of Trustees provide development funding. In addition, a national Licensure Task Force jointly sponsored by the ADA and the American Dental Education Association unanimously endorsed the development of the dental licensure OSCE at its January 2017 meeting. Subsequently, the Board of Trustees spent a considerable amount of time at its February 2017 meeting discussing the plan. There were several factors that ultimately led the Board of Trustees to support both the CDEL recommendation and the Joint Licensure Task Force endorsement:

- The development of an OSCE for dental licensure reflects several long-standing and current ADA policies on dental licensure, not only the elimination of the use of patients in licensure examinations, as mentioned above, but also policies on licensure portability and acceptance by state dental boards of a single, national clinical exam. In particular, the issue of license portability consistently ranks as one of the top three issues for the ADA's new dentist members.
- Available psychometric analysis of current patient-based licensure examinations strongly suggests that the patient-based exams do not screen out beginning practitioners with inadequate hand-skills. In other words, the validity and reliability evidence may not support the assertion that the patient-based exams protect the public by keeping incompetent practitioners from obtaining a dental license.
- Psychometric analyses of the Canadian dental licensure OSCE strongly suggests there is more evidence in support of the reliability and validity of scores on the OSCE, as compared to patient-based exams.
- Many of the ethical issues of a patient-based examination, as outlined in the Council on Ethics, Bylaws, and Judicial Affairs (CEBJA) white paper on "Ethical Considerations When Using Human Subjects/Patients in the Examination Process", remain unresolved for the vast majority of candidates taking a patient-based licensure exam. This has become particularly relevant this year, as the ADA celebrates the 150th anniversary of its Code of Ethics.
- The ADA Department of Testing Services has a long-track record of developing and implementing highly valid and reliable high-stakes examinations in both the licensure and admissions arenas.

This is a complex issue and members and other stakeholders can be assured that the plan was carefully vetted and thoroughly discussed over a six-month period. The ADA has every confidence that the dental licensure OSCE, as developed by the ADA, will meet the highest standards in high-stakes testing and, more importantly, will provide a better mechanism for regulatory agencies to protect the public.

Please feel free to contact Tony Ziebert directly at zieberta@ada.org if there are any questions.

April 12, 2017

and the Commission's annual budget to the Board of Trustees of the Association.

c. Submit the Commission's articles of incorporation and rules and amendments thereto to this Association's House of Delegates for approval by majority vote.

B. JOINT COMMISSION ON NATIONAL DENTAL EXAMINATIONS. The duties of the Joint Commission on National Dental Examinations shall be to:

a. Provide and conduct written examinations, exclusive of clinical demonstrations for the purpose of assisting state boards of dental examiners in determining qualifications of dentists who seek license to practice in any state or other jurisdiction of the United States. Dental licensure is subject to the laws of the state or other jurisdiction of the United States and the conduct of all clinical examinations for licensure is reserved to the individual board of dental examiners.

b. Provide and conduct written examinations, exclusive of clinical demonstrations for the purpose of assisting state boards of dental examiners in determining qualifications of dental hygienists who seek license to practice in any state or other jurisdiction of the United States. Dental hygiene licensure is subject to the laws of the state or other jurisdiction of the United States and the conduct of all clinical examinations for licensure is reserved to the individual board of dental examiners.

c. Make rules and regulations for the conduct of examinations and the certification of successful candidates.

d. Serve as a resource of the dental profession in the development of written examinations.

C. COMMISSION FOR CONTINUING EDUCATION PROVIDER RECOGNITION. The duties of the Commission for Continuing Education Provider Recognition shall be to:

a. Formulate and adopt requirements, guidelines and procedures for the recognition of continuing dental education providers.

b. Approve providers of continuing dental education programs and activities.

c. Provide a means for continuing dental education providers to appeal adverse recognition decisions.

d. Submit an annual report to the House of Delegates of this Association and interim reports, on request, and the Commission's annual budget to the Board of Trustees of the Association.

e. Submit the Commission's rules and amendments thereto to this Association's House of Delegates for approval by majority vote either through or in cooperation with the Council on Dental Education and Licensure.

American Association of Dental Boards
www.dentalboards.org

Dr. Gary L. Roberts, President
American Dental Association
10987 Angelles Cove
Shreveport, LA 71106

Dr. Joseph P. Crowley, President-Elect
American Dental Association
3475 North Bend Road
Cincinnati, OH 45239

Dr. Kathleen T. O'Loughlin
Executive Director and Secretary
American Dental Association
211 East Chicago Avenue
Chicago, IL 60611

May 5, 2017

RE: ADA's Proposed National OSCE Examination

Dear Drs. Roberts, Crowley, and O'Loughlin:

The dental profession is fraught with a wide range of interesting, and at times controversial, issues. None of these issues has drawn more discussion and resulted in more angst than the subject of licensure testing. This observation was reinforced by the ADA Board of Trustees' recent vote to create a national objective structured clinical exam (OSCE) and the ADA's publication of a group of "Talking Points for State Dental Societies" on April 12, 2017 in support of the proposed new exam. These recent actions by the ADA were discussed at the Mid-Year meeting of the American Association of Dental Boards (AADB) on April 23-24, 2017. The AADB membership unanimously passed a resolution directing the AADB Board of Directors to respond to the ADA. Herein is our response.

Initially, AADB wishes to emphasize that it supports a full and complete discussion and debate on the twin questions of whether there should be a national exam and whether any such national exam should have a patient-based component. Just such an open discussion occurred at the conclusion of both plenary sessions of the recent AADB Mid-Year Meeting. ADA representatives attended those sessions and made presentations, both formal from the podium and informal from the floor. While emotions at times ran high, the discussion among ADA and AADB members was professional and informative.

Second, AADB recognizes and completely supports the basic principle that each state dental board retains the full power to determine which tests will be accepted for licensure within its jurisdiction. Not surprisingly, achieving 50-state unanimity as to which tests will be accepted and whether these tests should have a patient-based component is virtually impossible. But one thing is certain: state dental boards will resist efforts by any organization to force them to accept a particular test. We respect their autonomy in these decisions.

Third, AADB respectfully asks ADA to reconsider its decision to develop a national OSCE, whether that exam has a patient-based component or not. Healthcare trade associations and professional organizations seldom develop the licensure tests for their members who practice that trade or profession. The mission of a professional association is different from a regulatory body, where one has the mission to support its members and the other to protect the public. The best way to avoid a conflict of interest is to prevent creating a regulatory scheme or structure in which such a conflict might arise. Those who are to be regulated should not be the ones to provide the test for licensure. We ask that the ADA Board of Trustees and the House of Delegates take a fresh look at the scope of responsibility for the ADA in these matters.

Finally, AADB has substantial reservations about ADA's position on patient-based licensure exams. While unanimity on an issue is, as already noted, seldom achievable, a considerable majority of AADB's state dental board members believe that an exam with a patient-based component is preferable to an exam without one. These boards also believe that there is ample expert opinion, data, and literature to support this position. AADB seeks careful analysis and discussion of ADA's assertions and empirical data relating to the reliability of patient-based exams.

We look forward to continuing the dialogue on this vital issue.

Sincerely,

Jill M. Burns

Dr. Jill M. Burns
President
American Association of Dental Boards

cc: AADB Board of Directors; Executive Directors, State Boards of Dentistry

ADA Officers, Trustees, Staff: Dr. Rickland G. Asai; Dr. Robert N. Bitter; Dr. Richard C. Black; Dr. Raymond A. Cohlmia; Dr. Jeffrey M. Cole; Dr. Judith M. Fisch; Dr. Chad P. Gehani; Dr. Glen D. Hall; Dr. Gary E. Jeffers; Dr. Daniel J. Klemmedson; Dr. Andrew J. Kwasny; Dr. Billie Sue Kyger; Dr. Ronald P. Lemmo; Dr. Kenneth McDougall; Dr. Irene Marron-Tarrazzi; Dr. G. Lewis Mitchell, Jr.; Dr. Kirk M. Norbo; Dr. Lindsey A. Robinson; Dr. Cesar R. Sabates; Dr. Alvin W. Stevens, Jr.; Dr. W. Roy Thompson; Dr. Anthony Ziebert

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JILL STUECKER
EXECUTIVE DIRECTOR

April 27, 2017

Dr. Anthony Ziebert
American Dental Association
211 E. Chicago Avenue
Chicago, IL 60611

Dear Dr. Ziebert,

The Iowa Dental Board has recently been made aware of a document published and disseminated by the American Dental Association titled "Talking Points for State Dental Societies".

We are writing to formally request all of the evidence you analyzed to support your published conclusion that our clinical examination does not screen out beginning practitioners with inadequate hand-skills, or protect the public by keeping incompetent practitioners from obtaining a dental license. Please include all psychometric analyses referenced. Further, we would like to independently analyze the evidence which purportedly suggests there is more reliability and validity of scores on the Canadian OSCE, as compared to patient-based exams. All information used to make these assertions should be sent to our attention, at the address listed below, within 10 business days.

The Iowa Dental Board takes the protection of the public very seriously. This document appears to be an attempt to discredit the work that we do and the standards we have set. The fact that it was published as a talking point, and disseminated to licensees in our state as factual information, without any evidence or supporting documentation is of grave concern and disappointment.

Sincerely,

Dr. Steve Bradley
Board Chair
Iowa Dental Board

Jill Stuecker
Executive Director
Iowa Dental Board

Cc: Dr. Kathleen O'Loughlin, American Dental Association
Richard Hetke, American Association of Dental Boards
Brian Barnett, American Association of Dental Administrators
Larry Carl, Iowa Dental Association
Sara Scott, Iowa Attorney General's Office

Concurrent Validity of Written and OSCE Components of the Canadian Dental Certification Examinations

Jack D. Gerrow, D.D.S., M.S., M.Ed.; H. Joseph Murphy, Ed.D.; Marcia A. Boyd, D.D.S., M.A., L.H.D. (hon); David A. Scott, M.Sc., D.D.S.

Abstract: The purpose of this study was to assess the concurrent validity of the National Dental Examining Board of Canada (NDEB) Written Examination and Objective Structured Clinical Examination (OSCE) by correlating students' scores with their performance in the final year of the D.D.S./D.M.D. program. The subjects of this study were the 2,317 students at nine Canadian dental schools who completed both NDEB examinations between 1995 and 2000. The findings indicate positive correlations ($r=0.43$ and $r=0.46$, $p<.001$, for the written and OSCE examinations respectively) between students' examination scores and final year results. Year-to-year and school-to-school variations were minimal. These findings supported the concurrent validity of both NDEB examinations.

Dr. Gerrow is Chair, Department of Dental Clinical Sciences, Faculty of Dentistry, Dalhousie University and Executive Director and Registrar of the National Dental Examining Board of Canada; Dr. Murphy is Associate Professor, Department of Dental Clinical Sciences, Faculty of Dentistry, Dalhousie University; Dr. Boyd is Professor Emerita, Faculty of Dentistry, University of British Columbia and Chief Written Examiner, National Dental Examining Board of Canada; and Dr. Scott is Professor, Faculty of Medicine and Dentistry, University of Alberta, and Past-President, National Dental Examining Board of Canada. Direct correspondence and requests for reprints to Dr. Jack Gerrow, Department of Dental Clinical Sciences, Faculty of Dentistry, Dalhousie University, Halifax, Nova Scotia, Canada B3H 1W2; 902-494-1417 phone; 902-494-1662 fax; jack.gerrow@dal.ca.
Financial support for this project was provided by the National Dental Examining Board of Canada.

Key words: certification, licensure, validity, OSCE, examination

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Professional certification boards have the responsibility to ensure their exam processes are as reliable and valid as possible. Nevertheless, for the past thirty years these high-stakes examinations have been a frequent source of controversy. An assessment of the validity of an entry-level examination for social workers by Johnson and Huff found that education and work experience had little impact on test scores.[1] In an overview article on professional licensing examinations, Hecht states that "what seems to be a simple problem on the surface, that being the policing of professionals for competence, turns out to be a very complex problem involving unresolved conceptual, legal and methodological issues particularly with examination validity."[2] In a 1994 paper, LaDuca proposes a validation strategy for professional licensing examinations that includes incorporating a theory of professions into the test development process establishing a balance between content and construct validity.[3]

A series of three studies examined the validity of the U.S. Medical Licensing Examination Steps 1 and 2 by comparing rating of students reported by study collaborators (usually associate deans) and other "idiosyncratically provided" measures of performance based on "local standards." The first of these studies[4] using data from five schools reported that, despite apparent differences in the use of the rating scale by the schools, the classification of students within each school was reasonably consistent with examination performance with correlation coefficients (eta; correlation of students classification with examination performance) in the 0.53 to 0.66 range for Part I (Step I) and 0.64 to 0.75 for Part II (Step II).

In the subsequent studies,[5,6] using data from twenty schools, the correlation coefficients (eta; correlation of students classification based on achievement in basic science with examination performance) within schools ranged from 0.49 to 0.79 for Step I and in the 0.43 to 0.71 range (correlation of students classification based on performance in clinical clerkship with examination performance) for Step II. For the schools that provided GPAs the correlation (r)

between students' GPA and examination, performance ranged from .72 to .83 for Step I and .54 to .78 for Step II. These findings suggest moderate to strong relationships between performance on the USMLE and school-based measures

Several writers have questioned the validity of dental licensing certification examinations. Hangorsky found discrepancies between the class rank of final-year dental students and their examination performance and concluded there was no correlation between the two measures.[7] He also reported that at one school, seven out of twenty-five students who failed a portion of the North East Regional Board (NERB) Examination were in the upper third of their graduating class. In addition, he observed that all of the students in the bottom 10 percent of their class passed the NERB examination. Damiano et al. reported that multi-year pass rates within a region indicate that factors other than a candidate's clinical ability may be influencing the examination outcomes.[8] A survey of graduates by Meeske indicated that they believed that licensing examinations were not valid assessments of their ability.[9] Formicola et al. studied the performance of 200 students at Columbia University and found that their scores on the NERB examination were not statistically significantly correlated with performance in restorative dentistry during the senior year.[10] In a Letter to the Editor response to the Formicola et al. article, Hoffman suggested that not all the blame belongs to the examination agency but that dental schools are also at fault.[11] In another Letter to the Editor, Rubin suggested that Formicola's article is "simply an attempt to shift responsibility for the high failure rate on the NERB clinical exam to the examiners."[12] Cartwright responded to Formicola et al. on behalf of NERB by giving a summary of results and an overview of examination development processes.[13]

The NDEB Written Examination is a 300-item, single-correct answer, multiple-choice examination administered in two, three-hour sessions during one day. The written examination has been a component of the NDEB certification process since 1994. The NDEB Objective Structured Clinical Examination (OSCE) was pilot-tested in 1994 and has been a required component since 1995. It is a case-based examination consisting of twenty-five stations each with a case history, photographs, models, or casts. At each station, candidates consider the case and answer four, single-correct answer, multiple-choice questions. After five minutes a signal directs candidates to rotate to the next station. The written and OSCE examinations are administered on consecutive days.

These examinations are designed to complement the accreditation process in which the NDEB plays an active role both during site visits and in the review of standards documents. Additionally, the NDEB recognizes that the assessment of clinical skills is best done within dental schools by the faculty using a variety of methods over a period of time.[14]

In view of the concerns about the validity of licensing examinations, this study assessed the concurrent validity of the Canadian NDEB written and OSCE examinations by correlating results on these examinations with performance in the final year of a D.D.S./D.M.D. program. In particular, this study sought answers to the following questions:

1. How do candidates perform on the NDEB written and OSCE examinations, and what is the reliability of these examinations?
2. What is the correlation between written and OSCE examination scores and final-year D.D.S./D.M.D. results?
3. Is the relationship between NDEB examination scores and final-year D.D.S./D.M.D. results consistent from year to year?
4. Is the relationship between NDEB examination scores and final-year D.D.S./D.M.D. results consistent in all of the nine dental schools?

Method

All of the 2,317 graduating students of nine accredited Canadian undergraduate dental schools participating in the March administration of both NDEB examinations for each year from 1995 to 2000 were included in this study. Students from the tenth school (University of Saskatchewan) were excluded because they participated in the December administration of the NDEB due to a difference in program length. All candidates signed an authorization allowing their university to release final grades to the NDEB for research purposes. Candidates' results from the written and OSCE examinations were entered into a database, together with graduation year, university, and performance in the final year as reported by the university.

The format, examination blueprints, and number of questions on the written and OSCE examinations were consistent in each year of the study. Parallel forms of each examination containing different

Table 1. Performance of 1995-2000 Canadian graduates of NDEB examination

	OSCE	WRITTEN
Mean	79.6	78.6
Std. Dev.	6.4	5.9
Maximum	97.0	94.0
Minimum	55.0	47.0
N	2317	2317

sets of questions were used each year. Questions for each of the parallel forms were selected based on an examination equating protocol to attempt to provide comparable difficulty from examination to examination and from year to year.

Since university performance was reported variously as GPA, class rank, percent average, and standing on a nine-point scale and since class sizes vary among universities, a common metric, the decile, was computed for these scores. The decile indicates class standing in tenths, with "1" representing the top 10 percent of the class and "10" representing the bottom tenth. These decile scores were used to represent final-year D.D.S./D.M.D. results in this study. In addition, three achievement groups were created. The "TOP" group included students who were in the upper 30 percent of their class; the "MID" group, the middle 40 percent; and the "BOT" group were the lowest 30 percent of the class. Pearson product-moment correlation coefficients were calculated using SPSS.

Results

1. How do candidates perform on the NDEB written and OSCE examinations, and what is the reliability of these examinations?

A summary of results of the examinations is shown in Table 1. The mean scores for both the written and OSCE examinations were just under 80 percent, and the OSCE had slightly higher maximum and minimum scores than the written examination. Additionally, 5.4 percent of candidates scored 90 or above on the OSCE, while only 1.3 percent scored in this range on the written examination. One percent of candidates scored below the minimum passing score of 65 on the OSCE, while 1.5 percent scored below 65 on the written examination. The reliability of both examinations was assessed by the KR_{20} reliability test, which is a formula that indicates the internal consistency or homogeneity of a test. Reliability estimates ranged from 0.88 to 0.96 for the written examination and from 0.69 to 0.74 for the OSCE during the six years reported in this study.

2. What is the correlation between written and OSCE examination scores and final-year D.D.S./D.M.D. results?

Results of this study show that scores on the written and OSCE examinations are both positively correlated with final-year D.D.S./D.M.D. results (written: $r=0.43$, $p<.001$; OSCE: $r=0.46$, $p<.001$). Additionally, written and OSCE scores show a positive correlation with each other ($r=0.54$, $p<.001$). Figures 1 and 2 illustrate the positive relationship between scores on the written and OSCE examinations and achievement groups. For example, in Figure 1, 32 percent of students in the "TOP" achievement group had a high score (85 or higher) on the written examination while only 4 percent of those in the "BOT" group had such a high score. Conversely, only 7 percent of students in the "TOP" group had scores below 75 on the written examination while 43 percent of those in the "BOT" group were in this range. Figure 2 illustrates a similar pattern of perfor-

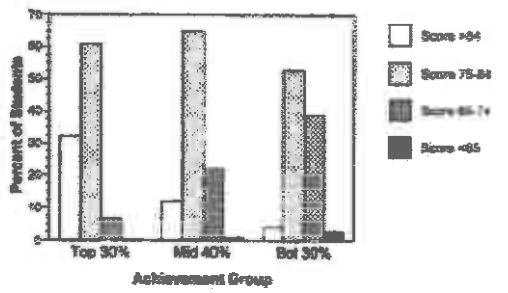

Figure 1. Written examination score by achievement group

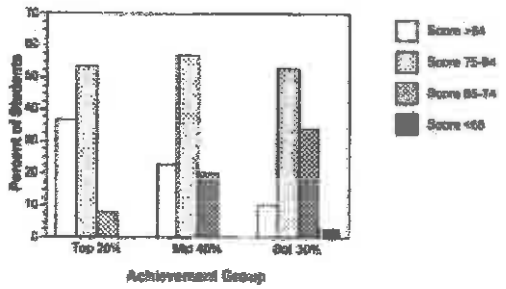

Figure 2. OSCE score by achievement group

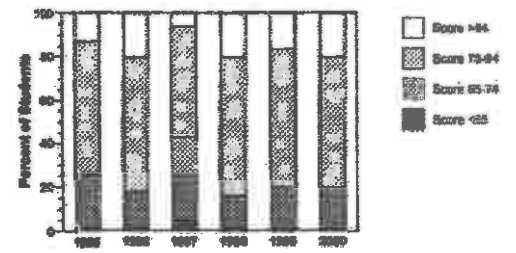

Figure 3. Written examination score by graduation year

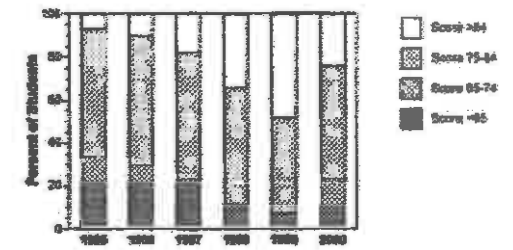

Figure 4. OSCE score by graduation year

mance on the OSCE examination by students in each achievement group. In addition, no student in the "TOP" achievement group scored below 65 on the OSCE, while only 0.4 percent of these students scored below 65 on the written examination. Further, only 4 percent of students in the "BOT" achievement group scored above 85 on the written examination, while 10 percent of these students scored above 85 on the OSCE.

3. Is the relationship between NDEB examination scores and final-year D.D.S./D.M.D. results consistent from year to year?

As shown in Figure 3, the proportion of students obtaining scores of 85 and above on the written examination ranged from a low of only 6 percent in 1997 to a high of 20 percent in years 1996, 1998, and 2000, with the overall average being 15.8 percent. Low scores (below 75) were obtained by as few as 16 percent in 1998 and as high as 43 percent in 1997, with an average of 23.4 percent across all years. Figure 4 suggests that the OSCE became relatively less difficult each year from 1995 to 1999 and then slightly more difficult in 2000. Because the examination format, blueprint, and length were consistent over the period of the study, the variation in performance may be related to candidate preparation or the use of parallel forms. The OSCE examination scores were more variable from year to year with the proportion of high scores (85 and above) ranging from 7 percent in 1995 to 48 percent in 1999, and the proportion of low scores (below 75) ranging from 7 percent in 1999 to 34 percent in 1995. The proportion of scores in the failing category, that is below 65 percent, ranged from 1 percent to 4 percent in any given year for the written examination and from 0 percent to 3 percent for the OSCE. Further, as Figures 5 and 6 illustrate for the written and OSCE examinations respectively, students at the top of their class have higher mean scores than those in the middle, who, in turn, have higher mean scores than those in the bottom in all years from 1995 to 2000.

4. Is the relationship between NDEB examination scores and final-year D.D.S./D.M.D. results consistent in all of the nine dental schools?

The average scores on the written examination and the OSCE examination for students in each achievement group at each of the nine schools are reported in Tables 2 and 3. The mean scores within achievement groups do not vary greatly from school to school. For the "TOP" achievement groups, means range from 80.2 to 83.6 for the written examination and from 80.0 to 83.3 for the OSCE. Similarly, the

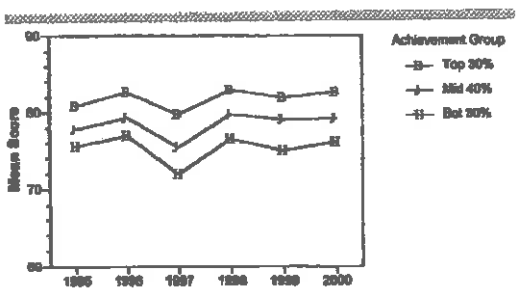

Figure 5. Written examinaton mean score by achievement group by graduation year

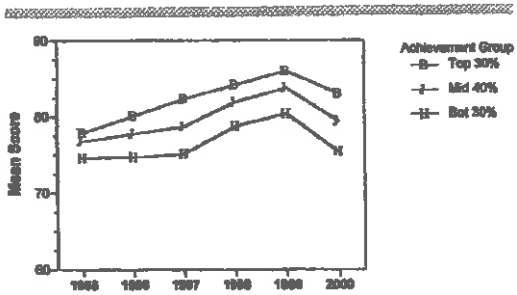

Figure 6. OSCE mean score by achievement group by graduation year

Table 2. Mean written examination score by achievement group by faculty

	Achievement Group		
Faculty	TOP	MID	BOT
1	80.3	76.6	73.6
2	80.3	76.7	73.4
3	82.3	77.9	74.0
4	83.2	78.2	76.3
5	82.3	80.2	76.8
6	82.2	79.2	76.1
7	80.2	75.1	74.1
8	80.4	77.5	75.0
9	83.6	81.7	78.7

Table 3. Mean OSCE score by achievement group by faculty Achievement Group

	Achievement Group		
Faculty	TOP	MID	BOT
1	81.5	78.2	76.2
2	82.7	79.1	75.2
3	83.3	80.5	76.8
4	80.2	77.5	75.4
5	82.7	81.1	77.2
6	83.1	80.2	76.8
7	80.5	78.3	73.9
8	80.0	77.6	75.5
9	83.0	81.9	78.9

mean scores for the "BOT" group range from 73.4 to 78.7 for the written examination and 73.9 to 78.9 for the OSCE.

Discussion

The written and OSCE examinations had similar mean scores and pass rates over the six years of this study. In addition, fewer than 2 percent of students failed either the written examination or the OSCE examination in any year. As all students in this study were in the final year of an accredited Canadian dental school, these low failure rates are not surprising and, indeed, were expected. The reliability of the written examination as indicated by the KR20 is very good and that of the OSCE is acceptable, considering the length of the examination and the relative homogeneity of the candidates.

Statistically significant correlation coefficients were found between both the NDEB examinations and final-year D.D.S./D.M.D. results. Although these correlations are statistically significant, they explain only a small portion, approximately 20 percent, of the variance in class rankings. Similarly scores on the written examination predict approximately 30 percent of the variance in the OSCE scores. This level of correlation between the two examinations is expected but demonstrates that the examinations do test different areas.

Although the variables measured in the studies on the USMLE were quite different from the variables measured in this study, the correlation coefficients and predictions of variance in the USMLE study and this study are generally in the same range with the exception of the correlation between reported GPA and examination performance, which was somewhat higher in the USMLE studies. This difference could be due to the variability of the data-reporting formats in the USMLE studies and the possible confounding effect caused by some courses in some schools using USMLE scores as a component of final course grades.

While some year-to-year variation in student performance, particularly with the OSCE, was found, the variation tended to occur substantially above the pass mark. Relatively minor variations occurred from year to year in the pass mark range that is the critical decision point for a high-stakes examination. Nevertheless, based partly on preliminary results from this study, the NDEB has adopted test-equating procedures to further minimize year-to-year variation. The consistency of the results from school to school supports the concurrent validity of the NDEB examinations and suggests that all schools provide appropriate preparation for their graduates.

Additionally, in contrast to the results of NERB examinations reported by Hangorsky,[4] over the six years of testing included in this study, no students in the top 50 percent of their class at any faculty failed the NDEB OSCE, and only six students in the top 50 percent failed the NDEB written examination. These results also support the concurrent validity of the NDEB examinations.

In summary, this study suggests that the NDEB written and OSCE examinations have a reasonably high level of concurrent validity when final-year results in dental school are the criteria. Nevertheless, while this study contributes to the establishment of concurrent validity, the NDEB is engaged in additional studies and examination procedures to address pertinent content and construct validity issues.

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Techniques for measuring clinical competence: objective structured clinical examinations

DAVID NEWBLE

The traditional clinical examination has been shown to have serious limitations in terms of its validity and reliability. The OSCE provides some answers to these limitations and has become very popular. Many variants on the original OSCE format now exist and much research has been done on various aspects of their use. Issues to be addressed relate to organization matters and to the quality of the assessment. This paper focuses particularly on the latter with respect to ways of ensuring content validity and achieving acceptable levels of reliability. A particular concern has been the demonstrable need for long examinations if high levels of reliability are to be achieved. Strategies for reducing the practical difficulties this raises are discussed. Standard setting methods for use with OSCEs are described.

KEYWORDS clinical competence, *standards; education, medical, undergraduate, *standards; educational measurement; reproducibility of results.

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BACKGROUND

The main purpose of this paper is to discuss the development of an objective structured clinical examination (OSCE) that meets acceptable standards of validity and reliability. In addressing this issue it is helpful to have an understanding of the background to the rise in popularity of the OSCE as a major tool in the assessment of clinical competence.

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The traditional method of assessing knowledge until the 1950s and 1960s was the essay. Concerns about the inconsistency of marking, and the inadequate sample of knowledge tested within a given period of time, led to the rapid implementation of objective written tests (e.g. multiple-choice tests), which today have almost entirely replaced essays as the preferred method of assessing the recall and application of knowledge in medical examinations. This trend has been particularly evident in high stakes testing situations where reliability and content validity are essential ingredients in making the results of such assessments defensible to both students and external agencies. In North America, the same concerns were raised about the traditional clinical and oral examinations used for assessing clinical competence in the 1960s. The National Board of Medical Examiners, after discovering low correlations between examiners, discontinued their clinical oral examination on the basis of unacceptable reliability.[1] Such decisions took longer to reach in other parts of the world, partly perhaps as a result of the lack of an alternative approach to the assessment of clinical competence. The advent of the OSCE in the 1970s promised the equivalent advantages in clinical testing to that of objective written examinations in knowledge testing.[2] In other words, the use of checklist based marking would enhance interrater consistency and the testing of students' performance on multiple stations would increase the number and range of competencies that could be sampled. The OSCE has subsequently been subject to a considerable amount of research into its strengths and limitations, the outcomes of which form the basis of generalizations to be made in this paper.[3]

In attempting to make such generalizations about OSCE's it is important to keep in mind various points. The first is that an OSCE is not a test method in the same way as an essay or a multiple-choice question. It is basically an organization framework consisting of multiple stations around which students

Key learning points

Traditional clinical examinations have serious limitations in terms of validity and reliability.

Objective structured clinical examinations (OSCEs) have the capacity to improve the validity and reliability of assessments of many aspects of clinical competence.

To achieve high levels of reliability OSCEs have to be longer than is often practicable.

OSCEs can be combined with other methods of assessment to enhance reliability.

Easy to apply standard setting procedures are now available.

A considerable body of evidence on OSCEs exists to guide decisions and further developments.

rotate and at which students perform and are assessed on specific tasks. The conventional view of an OSCE is of a series of 5–10 minute stations where a standardized clinical task is performed under the observation of one or two examiners who score the performance on a structured marking sheet. However, many variants exist. For example, stations may be much longer and examiners may not be present, with the marking being undertaken by the simulated patients on whom the task was performed.[4] In other OSCE's there may be stations at which multiple-choice questions are asked or at which other forms of written responses are required. This makes a discussion about OSCEs difficult if the format is not fully described. In this paper I will refer to the conventional short station format as this is the approach being used in most medical schools and by many licensing bodies such as the General Medical Council[5] and the Medical Council of Canada.[6]

Broadly speaking, the issues to be addressed in regard to the OSCE revolve around those to do with organization and those to do with the quality of the assessment. This paper focuses on the latter, though organizational issues, such as the numbers of examinees, location and resources, may have a major impact on the technical quality that can be achieved.

TECHNICAL ISSUES

The first article in this series addressed the fundamental principles of designing a good assessment.[7] It draws on a set of guidelines for assessing clinical competence which emphasizes the fundamental importance of being clear about the purpose; about defining what is to be tested and using a blueprint to guide the selection of content; about selecting the most appropriate test method and format which should be driven by fidelity to the clinical situation and the task to be posed to the candidate; about issues relating to administration and scoring; and about standard setting procedures.[8]

Purpose

The OSCE provides a test format particularly suitable for assessing many, but certainly not all, components of clinical competence.[9] For example, attitudinal and behavioural aspects are probably better tackled by the use of multiple ratings collected over a period of time during clinical attachments and clerkships. At the other end of the scale, the testing of relevant knowledge required to be competent, including aspects of diagnosis, investigation and management, can be more efficiently and more cheaply tested with written formats. Overall, the OSCE is best suited to testing clinical, technical and practical skills and can do so across a very broad range, often with a high degree of fidelity. These include many skills that were never tested in the traditional clinical examination.

Defining and selecting the content to establish validity

There are different ways of defining the content of a clinical competence examination. Doing so is the basis for establishing the *content validity* of the test, the most fundamental requirement in ensuring the quality of a competency test.[7]

The guidelines referred to previously outline three steps to be taken. The first two are required to define the range of competencies which reflect the 'outcome objectives' for the course or period of training that candidates are to be certified as having achieved. Step one is to identify the problems or conditions that the candidate needs to be competent in dealing with. These may be generated from the opinion of expert groups or by more formal studies based on observation and analysis of what

the student or doctors will have to undertake. Step two is to define the tasks within the problems or conditions in which the candidate is expected to be competent. For example, if the problem was 'Chest Pain' tasks might include taking a history from a patient with angina, performing and interpreting an ECG, demonstrating competence in cardiopulmonary resuscitation and educating a patient about the use of antiangina medication or a diet. While defining the task may be relatively simple, ensuring this is tested at the correct level can be more difficult.

The construction of a *blueprint* or grid is the third step. This is an extremely valuable strategy for enhancing and defending the validity of an examination. It is a way of defining the sample of items to be included in the test. In its simplest form it will consist of a two-dimensional matrix with one axis representing the generic competencies to be tested (e.g. history taking, communication skills, physical examination, investigations, management). The other axis represents the problems or conditions on which the competencies will be demonstrated. An example is provided by the blueprint for the OSCE run by the Professional and Linguistics Assessment Board of the General Medical Council.[5] Research has shown that performance on one problem is a very poor predictor of performance on another, even similar, problem, so wide sampling across problems is required if an adequate level of content validity and reliability (see later) is to be achieved.[10]

Determining and establishing reliability

Other articles in this series and elsewhere deal in detail with the research that has provided us with clear guidance on what we must do if we are to ensure defensible levels of reliability for an OSCE examination.[4] When the OSCE was first devised it was assumed that the main problem undermining reliability in clinical examinations related to the biases introduced by examiners, some of which were personal and some related to the lack of standardization of the tasks and scoring criteria. The 'objective' part of the OSCE referred to the standardization of both the task and the scoring (based on checklist type rating forms).[2] While this did indeed improve interrater reliability, research using generalizability theory showed that the problem of rater consistency paled into insignificance relative to the issue of *case specificity*.[11,12] The bottom line of such studies was that OSCE examinations, and indeed many other test formats used to assess aspects of clinical competence, needed to incorporate measures across a large number of cases or problems. The undeniable fact that emerged was that OSCEs, used alone, would need to be much longer (of the order of 4–8 h) than those in common use and that this potentially made them impractical.[12]

Various strategies have subsequently been adopted to minimize the practical difficulties raised by case specificity. The simplest is to combine the OSCE with other test formats that provide more efficient sampling of content.[13–16] As long as all test components are based on the same blueprint, this is a justifiable approach. One example is provided by our own experience with an undergraduate final examination where the combination of a 90-minute OSCE with an unacceptable reliability of around 0.6 was combined with a 90-minute free-response item written test (reliability 0.8) to produce an overall and acceptable reliability for the clinical competence examination of 0.8.[14]

One issue which has been given some prominence in recent years is that of the approach to rating. The original description of OSCE's anticipated that the use of checklists would enhance interrater reliability and would solve the problem created by global ratings used in traditional examinations. One problem that emerged from the checklist approach was the phenomenon of trivialization.[8] Unfortunately, it is easy to fall into the trap of developing detailed checklists that produce reliable scores but which do not truly reflect the examinee's performance of the task. Only criteria that are easy to define may be included on the marking sheet at the expense of equally or more important criteria that are more difficult to define and measure. Trivialization of the scoring may also be apparent if appropriate weightings within the marking schedule are not made. A related problem is possible unintended effects on student learning. If checklists are made available to students, they will inevitably use them to guide their learning. If they are not well constructed this may lead students to practise the wrong approach simply to enhance their chances in the OSCE.[17]

More recently, the issue of global vs. checklist ratings has been investigated in more depth. It is becoming apparent that global ratings, within the framework of structured tasks and used by informed or trained assessors, may be as reliable or even more reliable than checklists.[18] However, a balanced approach is probably best. There are OSCE stations where checklists may be more appropriate (e.g. some

practical and technical skills stations) and others where global ratings may be more appropriate (e.g. communication skills stations and some diagnostic task stations where there may be alternative routes to the same outcome). Our own preference is to use a combination of both, with checklists used to identify specific elements of content or skill that must be demonstrated and global ratings used for providing a measure of process aspects (e.g. patient education skills, general approach to a task). In the end the most important thing to evaluate is whether the final score truly reflects the level of competence of the examinees on the task they were asked to perform.

Standard setting

Another major issue which has achieved recent prominence in the literature is standard setting. This is dealt with in greater depth in another article in this series.[19,20] In general, the standard setting procedure uses either a relative (or norm-referenced) approach or an absolute (or criterion-referenced) approach. In testing for competence an absolute method is usually going to be the most appropriate. One broad approach is to use expert judges prospectively to estimate the probability that a borderline candidate will succeed on each item in the test. An example of such a method is the Angoff procedure.[21] The alternative but simpler approach is the borderline group method, which provides similar results to the Angoff method.[22] This is becoming more popular both for large scale OSCEs conducted by national licensing bodies, such as the Medical Council for Canada, and for small-scale OSCEs conducted by medical schools.[23,24] Such methods involve examiners giving a global rating of each student's overall performance independent of the mark they award as a result of completing the station scoring sheet. In our own experience we have used the categories pass/borderline/fail. The mean of all borderline scores becomes the pass mark for the station and the pass mark for the whole OSCE is calculated by adding the mean borderline scores of all stations. Examiners find this process easier than the Angoff procedure, it is less time consuming and has the added credibility associated with being based on direct observation rather than on a hypothetical student's performance. There are other variants on the borderline approach that are beyond the scope of this article.

One other issue that is sometimes debated is whether final decision-making should be based on the overall score across all stations – a fully compensatory model – or on passing a defined proportion of stations. Some organizations use a combination of both. There is no right or wrong answer as to which is the more valid approach. As a result, our preference is to use the simplest, which is the overall mark, to which additional statistical indices can then be applied such as the standard error of measurement, the educational measurement equivalent of a confidence interval.[25]

OTHER ISSUES

There are many other issues that could have been addressed in this article but space precludes dealing with them in any detail. For instance, a considerable amount of work has been done on the use of simulated and standarized patients. Generally speaking, it has been demonstrated that, when well trained, they cannot be distinguished from real patients, are stable over time, and can provide accurate feedback and assessments.[26,27] Other examples include station length and effects of the order in which students take the stations. A recent review provides a useful starting point for those interested in such issues.[4]

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The relationship between performance in a dental school and performance on a clinical examination for licensure

A nine-year study

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ABSTRACT

Background. Licensure examinations in dentistry have become an increasing concern, owing to ethical issues in the use of patients, difficulties in finding relationships between outcomes of licensure examinations and performance in educational programs, and questions on the reliability of "one-shot" clinical examinations. Using data from a nine-year period, the authors compared the results of clinical licensing tests and the academic class ranks of the candidates.

Methods. The authors studied data for 836 dental school graduates of one school from 1994 through 2002. They compared the dental graduates' results from the North East Regional Board, or NERB, of Dental Examiners examinations with their class ranks. The authors used analysis of variance to analyze the differences among passing, failing and "no data" groups, Kolmogorov and logistic regression for variation, and receiver operating characteristic, or ROC, curves for diagnostic utility.

Results. The class rank of graduates who passed and failed NERB's restorative section of the examination did not differ. Differences for other sections of the examination were statistically significant but small. The variation in restorative and manikin exercises over time was highly significant. No consistency existed between these tests, and their ROC curves indicated no utility for diagnosing class rank.

Conclusions. The authors' analysis of nine years' data called into question the reliability and validity of initial licensure examinations based on certain of the one-time tests used by NERB. Future study should determine if the results generalize to other schools and clinical testing agencies.

Practice Implications. If the results of this study can be generalized to all U.S. licensure examinations, basing licensing decisions on clinical licensure examination alone risks licensure decisions of low validity. Use of patients in examinations of questionable validity may be unethical because they may have been subjected to risk of irreversible damage without contribution to a valid decision-making process by the licensing authority.

Clinical testing for licensure has come under increasing scrutiny in recent years. Concerns about the process include validity of the examinations for licensure decisions,[1,2] ethical and other issues in the use of live patients,[3-8] and large variation in failure rates among examinations given by different testing agencies.[9] One might expect a positive relationship between performance while a student is in a dental educational program and performance on clinical licensure examinations.[10] However, published data do not uniformly support that conclusion.[11-13]

An analysis of nine years' data called into question the reliability and validity of initial licensure examinations.

A recent report found no differences in class rank or grade point average, or GPA, between graduates who failed and those who passed the restorative section (amalgam and composite restorations) of a clinical examination given by the North East Regional Board of Dental Examiners, or NERB.[2] This report also found a wide distribution of class ranks for both those who failed and those who passed NERB. At the same time, there was a difference in academic performance between students between those who passed and those who failed a NERB exercise on a manikin, though again the distribution of

class ranks among failing and passing graduates was highly dispersed.

The results of that study added to questions about validity of licensing examinations for making decisions about licensure and increased concerns about the ethics of irreversible procedures on patients in those tests.[2] Those results, however, were for a single year only, which might have been unrepresentative of the general results of NERB's examination. Therefore, in the current study, we assessed the relationship between dental students' performance in dental school and performance on NERB's clinical examination by assessing results over nine years.

METHODS

We studied the results of NERB clinical examinations that were performed in May of the years 1994 through 2002 at the Baltimore College of Dental Surgery, Dental School, University of Maryland. We analyzed data representing the 835 doctor of dental surgery graduates of the school during that period. We determined the class rank for each graduate within each class based on his or her overall GPA, and then we normalized the class rank for comparability among classes by converting it to a percentile. We used the results of each graduate's first time taking NERB's clinical examination (as reported to the school by NERB) from each of the examinations major sections:

- the dental simulated clinical exercise, or DSCE (written);
- the restorative clinical exercise, or RESTOR;
- the simulated patient treatment (manikin) clinical exercise, or SIM PATIENT;
- the periodontal clinical exercise, or PERIO.

Since NERB uses a conjunctive scoring method, the overall result was failure for those who scored below 75 on any of the sections. NERB reported no results for 235 of the 835 graduates in the year of their respective graduations; this meant that those graduates either did not take the examination or did not provide NERB with written permission to release the scores.

We conducted statistical analysis of the data in three parts. We used logistic regression to investigate two questions: were the passage/failure rates consistent over the nine years? What was the diagnostic value of the clinical tests as indicated by receiver operating characteristic, or ROC, curves for determining the quality of the dental students? A clinical test in dentistry is similar to a diagnostic test in medicine. The goal of any diagnostic test is to separate abnormal results, which indicate disease, from normal results, which indicate health. The goal of a licensing examination is to separate people who have the knowledge and ability to practice from those who do not. ROC curves provide a tool for evaluating such diagnostic tests.[14] They evaluate the diagnostic quality of a test by presenting a visual representation of sensitivity and one minus specificity for a range of values of the test, which in our case was used to diagnose class rank percentile. For example, one can determine from the curves if the test has high sensitivity and specificity for detecting students with low class rank. The diagnostic value of the test is measured by comparing the distance of the curve from a diagonal across the chart. The diagonal is representative of a test with no diagnostic ability; thus, the further the curve is from the diagonal, the better the diagnostic ability of the test.

Since the North East Regional Board of Dental Examiners uses a conjunctive scoring method, the overall result was failure for those who scored below 75 on any of the sections.

For the second part of the analytical strategy, we used the Fisher exact test and we estimated a κ statistic to determine if the RESTOR section and the SIM PATIENT section of the clinical examination produced similar results. In other words, we tested the agreement between those two sections of NERB's examination.

We used analysis of variance, or ANOVA, to test whether the mean class rank percentile was similar or different among the three groups of graduates (those who passed the test, those who failed and those for whom we had no reported results). We then used the Tukey test for multiple comparisons to test for differences between each pair of groups. We used the ANOVA models separately for the four licensing sections being evaluated and for the composite overall passage/failure rate.

RESULTS

Figure 1 depicts the year-to-year variation in failure rates over the nine years of this study. The overall failure rates, the RESTOR section and the

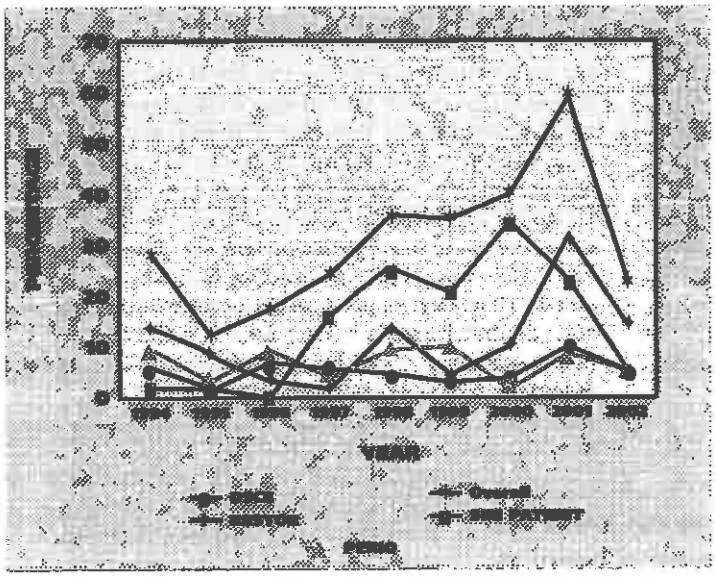

Figure 1. Percentage failure of the North East Regional Board examination and its sections, by year. RESTOR: Restorative clinical exercise. SIM PATIENT: Simulated patient treatment (manikin) clinical exercise. PERIO: Periodontal clinical exercise. DSCE: Dental simulated clinical exercise (written).

TABLE 1

COMPARISONS OF GRADUATES WHO FAILED AND PASSED THE RESTOR* AND SIM PATIENT† SECTIONS OF THE NERB‡ EXAMINATIONS.§

	Failed SIM PATIENT	Passed SIM PATIENT
Failed RESTOR	10 (12)	71 (88)
Passed RESTOR	54 (10)	465 (89)

and 10 percent passed the SIM PATIENT section but failed the RESTOR section. The κ statistic for the comparison was 2 percent, which was lower than its standard error of 4 percent.

The total numbers of graduates who passed, failed or had no reported results from the NERB examination in their respective graduation years (1994-2002) appear in Table 2. Mean class rank percentiles for those who passed, failed or had no reported results are shown in Table 3. Nine-year failure rates were 4 percent for the DSCE section, 6 percent for the PERIO section, 10 percent for the RESTOR section and 13 percent for the SIM PATIENT section. Conjunctive scoring produced an overall 29 percent failure rate on initial attempts to pass NERB's clinical examination; this was more than twice the rate of any single section. If the failure rate of the four sections were to be summed, conjunctive scoring would have meant that 33 percent of the graduates having reported results would have failed the overall test if none of them failed more than one section. Therefore, failing more than one section of the test was a rare occurrence (4 percent of all, and only 13 percent of those who failed at least one section).

We detected no statistically significant difference in class rank percentile between those who passed and those who failed the RESTOR section, though those who passed differed from those with no reported results. In the overall passage/failure results and in those for the SIM PATIENT section, those who passed had a lower (better) class rank percentile than did either those who failed or those with no reported results. While those differences were statistically significant, they were numerically small and close to the median. The group that passed the PERIO section had a better class rank percentile than either those who failed or those with no reported results. And, the DSCE section showed the largest distinction in class rank percentile between the passing and failing

SIM PATIENT section each varied significantly over time ($P < .0001$), whereas the year-to-year failure rates for the PERIO section and the DSCE section did not ($P > .1$ and .5, respectively). Additionally, as shown in Table 1, the failure rates of the RESTOR and SIM PATIENT sections were inconsistent with one another over the nine years—that is, their passage/failure rates varied independently from one another. When we compared the students who passed or failed those sections, we found no agreement between them. A total of 12 percent of those who failed the SIM PATIENT section also failed the RESTOR section,

groups. This was owing to a worse class rank for the failing group for this section compared with the other sections of the examination.

The ROC curve for evaluating class rank by failure of the NERB clinical examination (overall failure) is shown as Figure 2. It indicates that the examination was not a good diagnostic tool for that purpose. The curve is close to the diagonal, and there is no point on the curve that has high sensitivity and an acceptable false-positive rate (one minus specificity). Each of the ROC curves for the sections involving on-site evaluations by examiners was similar to the curve for overall results. To illustrate, the ROC curve for the NERB's RESTOR section is presented as Figure 3. The analogous curves for the PERIO and SIM PATIENT sections were nearly the same, so we did not include illustrations for them. Only the DSCE section offered the possibility of achieving a 90 percent sensitivity at less than a 60 percent false-positive rate (Figure 4, page 1151). At 80 percent sensitivity, the DSCE section had about 30 percent false-positives, and at 70 percent sensitivity, it had about 15 percent false-positives.

TABLE 2

NUMBER OF GRADUATES WHO PASSED, FAILED OR HAD NO REPORTED RESULTS FOR THE NERB* CLINICAL EXAMINATION, BY SECTION.

[illegible]	[illegible]		
	Passed	Failed	[illegible]
[illegible]	836	64	235
SIM PATIENT†	819	81	235
[illegible]‡	881	40	234
DSCE§	829	95	231
[illegible]	417	183	236

* NERB: North East Regional Board.
† RESTOR: Restorative clinical exercise.
‡ SIM PATIENT: Simulated patient treatment (manikin) clinical exercise.
§ PERIO: Periodontal clinical exercise.
¶ DSCE: Dental simulated clinical exercise (written).

TABLE 3

MEAN CLASS RANK PERCENTILE OF GRADUATES WHO PASSED, FAILED OR HAD NO REPORTED RESULTS FOR THE NERB* CLINICAL EXAMINATION, BY SECTION.

[illegible]	[illegible]		
	Passed	Failed	[illegible]
[illegible]	48[a]	54	50[a]
SIM PATIENT†	45[a]	58[b]	56[b]
[illegible]‡	48[a]	59[b]	56[b]
DSCE§	45[a]	78[c]	55[b]
[illegible]	42[a]	58[b]	56[b]

* NERB: North East Regional Board.
† Percentages in the same row with the same superscript letter differ from each other, $P < .05$.
‡ RESTOR: Restorative clinical exercise.
§ SIM PATIENT: Simulated patient treatment (manikin) clinical exercise.
¶ PERIO: Periodontal clinical exercise.
# DSCE: Dental simulated clinical exercise (written).

DISCUSSION

The most important feature of any test is the degree to which it provides a basis for a valid decision.[15] As reflected in this study, the clinical test administered by NERB over a nine-year period to students from one dental school exhibited a number of characteristics that can be used to argue against its validity for decisions by licensing authority on whether to grant a license to practice dentistry.

The significant variation in certain failure rates from year to year suggests that either the tested abilities of graduates were different from year to year or that the NERB examination itself was different from year to year. Concern about this variation in the test is compounded by the inconsistency between the results of the SIM PATIENT and the RESTOR sections within the

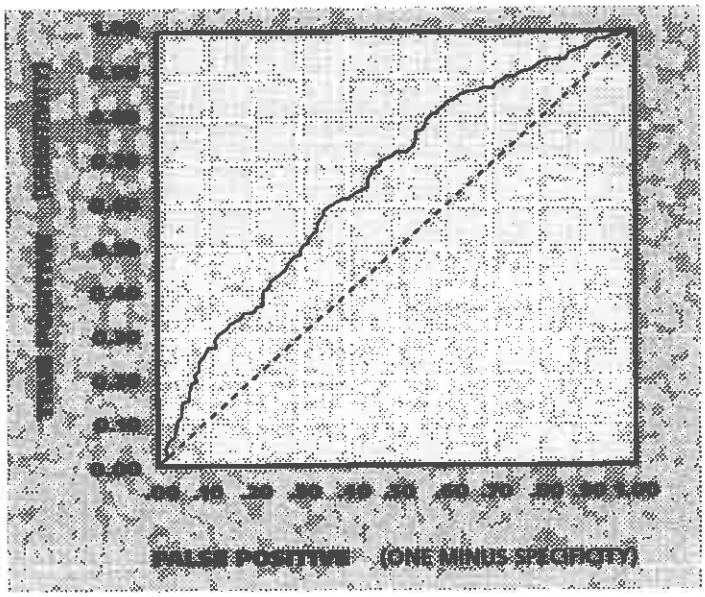

Figure 2. Receiver operating characteristic curve for evaluating class rank, by failure of the North East Regional Board examination.

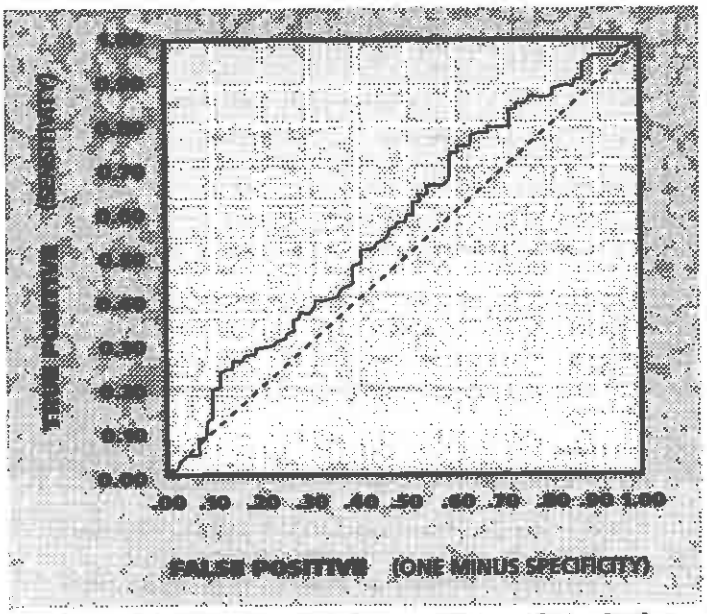

Figure 3. Receiver operating characteristic curve for evaluating class rank, by failure of the restorative clinical exercise section of the North East Regional Board examination.

NERB examination. Although there are differences in some skills tested in the SIM PATIENT and RESTOR sections (for example, the SIM PATIENT section uses a typodont for an extracoronal procedure and the RESTOR section requires clinical decision making for an intracoronal procedure in a patient), they are the most closely related of the four components of the NERB examination. The final products involve preparations and physiologically contoured restorations that use similar hand-eye coordination skills. Consequently, one would expect some measure of agreement between them. But with a K statistic that was essentially zero, the only possible conclusion is that the tests fail to validate each other. The finding that failing more than one section of the examination was a rare occurrence strengthens this conclusion. These findings support a hypothesis that the difference in failure rates over the nine years was related to inconsistent evaluations by the clinical evaluators, not to variation in the abilities of the graduates over those years. The hypothesis also is supported strongly by the lack of variation over time of the PERIO and DSCE sections of the evaluation. Whereas NERB and other clinical testing agencies do strive for intraexamination reliability by standardization exercises for examiners, the results of our study indicate that the interexamination reliability (year to year) is not good and that the examiners are not consistent among the different sections of the NERB. We are aware of no other published analysis of these types of variations in clinical dental examination results.

This is not to say that the standardization exercises are without value. Standardization should reduce variation due to measurement error. Standardization for examiners, however, does not ensure that the overall test is valid, or that other, even larger, sources of variation are controlled. In fact, variation attendant to the use of nonstandardized patients as part of the examination can be substantially larger than variation attributable to measurement error, thus reducing or destroying the reliability of the clinical test.

Decisions for licensure should be based on tests that are both valid and reliable. If the variability found in our study is representative of tests in other licensing jurisdictions, decisions across the nation about licensure are being made by licensing authorities on the basis of observations of clinical testing agencies that are

suspect for reliability and validity. There is no question that the dental examiners for these testing agencies are dedicated people who take time from their practices or other professional and personal pursuits to conduct the examinations for the betterment of the profession and protection of the public. Despite their efforts, however, the data in this report indicate that the NERB examiners are not likely to accomplish their goal of eliminating unqualified people from licensure. Over the time that NERB has reported results as those who "availed themselves of all opportunities to pass the NERB Clinical Examination in Dentistry," 100 percent of the graduates in our study passed (E.H. Hall, director of examinations, North East Regional Board, written communications, Jan. 23, 2002, and Jan. 15, 2003). NERB's failure to reach the same conclusion on first examination came at the cost of denying licensure to competent graduates for some period during a time when their educational debt burden is at an all-time high.

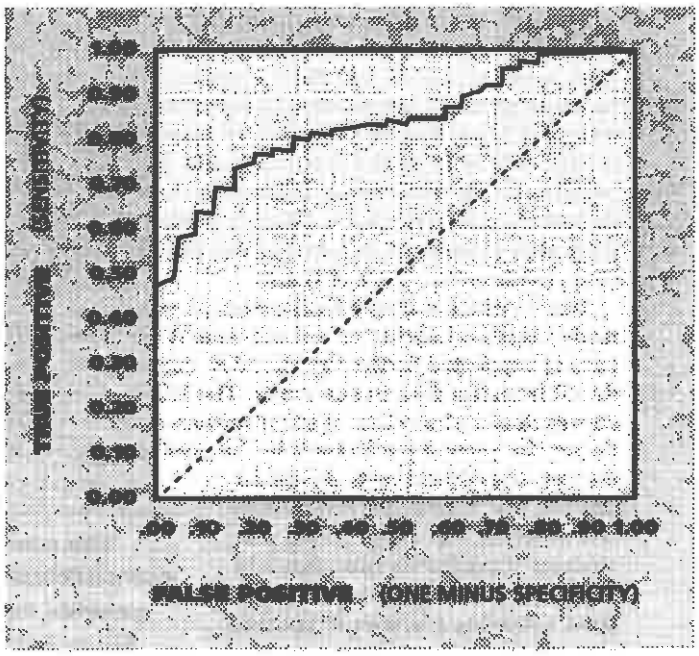

Figure 4. Receiver operating characteristic curve for evaluating class rank, by failure of the dental simulated clinical exercise (written) section of the North East Regional Board examination.

Over a nine-year period, there was no significant difference in class rank percentile between those who passed the RESTOR section of the NERB examination and those who failed it. This indicates that a one-time evaluation by NERB examiners of restoration preparation, caries removal, and placement and finish of amalgam and composite restorations essentially does not relate to the quality of the respective students as determined by the dental school faculty. This finding is in agreement with a previous report from a single year's results from an examination given by NERB.[2] As the faculty's determinations are based on multiple observations, and validity of decisions is improved by use of multiple observations,[15] the usefulness of the NERB examiners' determination that a graduate lacks competence in restorative dentistry is questionable. On the basis of the data from our study, one can conclude that the state boards of dental examiners should question the clinical licensure examiners' conclusion in that regard, and take more seriously the determination of the faculty. To assure the public that there is not a conflict of interest for the faculty in determining qualification for practice, perhaps those making the licensure decision should take both the faculty's observations and the observations of an independent third party into account. But based on the results of our study, a decision should not be based solely on the determination of the examining agency, as the decision would in that case lack sufficient validity.

From the data, NERB's use of conjunctive scoring clearly elevated the failure rates by more than double the rate of any of the examination's contained sections. In selecting conjunctive scoring, NERB argues that a passing mark in each section is necessary to ensure protection of the public by independent evaluations of competence for each part of the examination that they determine to be important.[16] If reliability of the examiners' determinations was good, that assertion would be plausible. However, it is not realistic to accept that argument, as reliability from section-to-section was nonexistent when we evaluated it over a nine-year period, and major sources of variation that can contribute to a failing score remain uncontrolled. It would appear, in fact, that the conjunctive scoring method decreases the reliability of the pass/fail decision at the level of the examining agency. Therefore, it also decreases the validity of the decision at the level of the licensing authority if the licensing authority accepts the agency's evaluation without considering other factors.

Even for the PERIO and SIM PATIENT sections of the NERB examination for which mean class rank percentiles did differ significantly between pass and fail results, those differences were not large; they were only 45 or 46 versus 58, a difference of 12 to 13 percentile ranks out of a possible 99. So while these differences were statistically significant at $P < .05$, it is unlikely that they were significant in terms of validity of decisions made on the basis of them.

Our conclusion that NERB's clinical examination lacks reliability as a requirement for licensure is supported further by the ROC curves produced from the data in our study. The ROC curves demonstrate that if the intention is to detect the poorest performers in the graduating classes, the clinical tests do not do the job. The examining community has asserted that only a small percentage of graduates (perhaps 2 to 3 percent[17]) should be prevented from obtaining a license to practice through the clinical testing process. It seems reasonable that the worst 2 to 3 percent of the graduates might be found in the lower portion of the dental school class as determined by the dental school faculty. But our ROC curves showed that NERB's clinical tests could not do much better than a random possibility of making that determination. Most people who failed the examination on their first try did not reliably deserve to. And at least for those years for which we have the relevant report from NERB, all the graduates who persisted in taking the examination after failing the first time did pass within the same year.

The clinical examinations did not provide validity for making the licensure decision.

Over the nine years we studied NERB's DSCE section, it had a 33 percent rank differential between candidates who passed or failed, which was between double and triple the differential for the clinically evaluated sections. Its ROC curve also indicated that it came closer to being diagnostically useful for academic performance than any other section or the overall results of the NERB examination. We expect that a substantial part of the reason for this is because the uncontrolled variation attendant to use of human subjects (patients) in the RESTOR and PERIO sections, and the subjective determinations made in those sections and the SIM PATIENT section are not present in the DSCE section. It also is possible that part of the reason is that the DSCE section is more analogous to the type of grading and ranking most commonly encountered by students in dental school.

Most, if not all, of the jurisdictions that use the NERB examination also require a passing score on Parts I and II of the National Board Dental Examinations. In addition, some dental schools, including the school that was the source of data for our study, require that a student pass that examination before graduation. The natural question is whether passing both the National Board Dental Examination and NERB's DSCE section is a reasonable requirement for licensure. A comparison of NERB's DSCE section and Part II of the National Board Dental Examination performed at the request of the ADA House of Delegates in October 1998 reportedly concluded that they measure different things.[18] That comparison could not determine, however, whether one examination provided more useful information than the other for purposes of the licensure decision, or whether either examination would identify the same people as having passed or failed. A direct comparison of students' in-school performance on Part II of the National Board Dental Examinations with their performance on NERB's DSCE section showed that the results from both examinations essentially were the same.[19]

While our current study improved on previously published data by using results over a number of years, it still was limited to one school, meaning also that it was limited to that school's educational program and its facility as a NERB examination site. It would be useful to conduct similar analyses of data from several schools together and from different examining agencies.

CONCLUSION

Over a nine-year period, the NERB examination results of graduates from one dental school failed to be a good measure for detecting the quality of those graduates as determined by the dental school's faculty. The sections of the NERB examination that were dependent on examiner observations were less able to make a distinction between good and poor class rank than was NERB's DSCE section. The interexamination reliability of the NERB examination was low, as indicated by the high year-to-year variation in the clinical examination results and the fact that different sections

of the examinations were not able to validate each other, while the results from the DSCE section did not significantly vary from year to year. The clinical examinations did not provide validity for making the licensure decision, bringing into question the ethics of using invasive and irreversible procedures on patients as a part of the dental licensure examination. ■

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What the Available Evidence on Clinical Licensure Exams Shows

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INTRODUCTION

Clinical licensing examinations are said to exist for the purpose of protecting the public.[1-3] The best evidence to support their use would be data to show that the tests accurately identify those that would be dangerous to the public while not falsely identifying others, ie, that the tests have good predictive validity. Unfortunately, those data do not exist.

In the United States, statutory responsibility for protecting the public lies with state governmental agencies, boards of dental examiners, or bodies of similar title. Many boards contract with testing agencies to provide test results on which to base a decision to grant an initial license to practice, while a minority of them develop and conduct their own examinations. Regardless of that, in pursuit of their charge to protect the public a typical dental board spends the great majority of its time dealing with disciplinary violations committed by those already licensed rather than on initial licensure decisions.[4] Thus one reasonably could argue that the function of public protection would be served better by concentrating boards' efforts in ensuring continuing competency of previously licensed practitioners rather than in attempting to determine competency of new graduates of accredited programs.

In the absence of evidence for their predictive validity, continued use of initial licensure examinations as they are currently conducted might be supported by evidence of their reliability, content validity, and concurrent validity. This review examines the available evidence in that regard. Unfortunately, published studies have been few, and they often have been handicapped by not having access to all of the data from the relevant examinations. Those studies that are available, however, have failed to consistently support reliability or validity of the examinations as indicated in the balance of this review.

EVIDENCE ON UTILITY OF CLINICAL LICENSURE EXAMINATIONS

Anecdote

Anecdotal evidence of inadequate performances on clinical licensure examinations has been used to indicate that the examinations are necessary to protect the public.[5] Anecdotes, even if elevated to case reports, are the lowest level of evidence, just above undocumented opinion.[6,7] They could be somewhat more convincing if supported by case controls (eg, rate of inadequate performance by already licensed practitioners in identical tests and conditions), but no more rigorous data than uncontrolled anecdotes have been published by examining agencies, nor have they published other types of data to allow assessment of the reliability or validity of the examinations.[8-10]

Reliability

As pointed out earlier by Damiano et al,[11] absent systematic bias one would expect results from highly reliable clinical licensure examinations to be constant among agencies and within agencies over time. In fact, first-time pass rates among 6 agencies for whom data were published in at least 3 of the years 1998 to 2001 varied by 31% to 90% among agencies within a year (1999) and from 68% to 92% within an agency (Louisiana) over the 4 years. Even limited to the 4 regional testing agencies the variations were 62% to 95% among agencies in a year (1998) and 16% (both Central Regional Dental Testing Service [CRDTS] and North East Regional Board of Dental Examiners [NERB]) over time (Table 1).[12-15] Modeling all of the data in Table 1 indicated that the variation among agencies was highly significant (analysis of variance [ANOVA], $P < .0001$) but variation over time was not. Pass rates for Nevada were significantly lower than for all the other agencies, and pass rates for Southern Regional Testing Agency (SRTA), Louisiana, and NERB were significantly lower than for Western Regional Examining Board (WREB) or CRDTS (Tukey's honestly significant difference [HSD] test). When the model was limited to the regional agencies only, there was still a significant difference among them ($P < .005$) with the pass rates for NERB being significantly lower than for the other 3 agencies.

While pass rates as a whole among the agencies did not differ over time for the 4 years 1998 to 2001, they did significantly vary within an agency for at least one school over 9 years (Table 2).[16] The variation in overall results was due to variation in scores for the restorative dentistry section (RESTOR) and for the simulated patient section (SIM PATIENT—temporary fixed partial denture and endodontic preparation on a manikin). Given the significant variation of NERB scores over time for one school and insignificant variation over time for all such scores, it follows that at least some other individual schools subjected to the same

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Table 1. First-time pass rates (%) within and among testing agencies, 1998-2001*

	1998	1999	2000	2001
CRDTS[a]	n/a	83.9	88.1	84.5
NERB[b]	62.5	63.2	63.4	78.3
SRTA[ab]	87.4	79.5	89.8	73.5
WREB[a]	92.9	90.3	89.9	91.2
Nevada[c]	38.5	31.3	36.4	43.8
Louisiana[ab]	68.3	85.7	77.8	91.7

CRDTS, Central Regional Dental Testing Service; NERB, North East Regional Board of Dental Examiners; SRTA, Southern Regional Testing Agency; WREB, Western Regional Examining Board.

[abc]Pass rates for agencies not connected by the same letter were significantly different (Tukey's HSD test after ANOVA for significant variation in pass rates among agencies, $P < .0001$).

*Reported total pass rates are used, except that CRDTS in 2000 and NERB in 2000 and 2001 reported scores by section only. The lowest reported pass rate for a section is used in those cells, as conjunctive scoring used by the agencies would mean that percent *at most* passed the test (qualified for licensure). The actual total pass rates may have been somewhat lower because of failures in other sections of the examination.

Table 3. Failure rates for NERB's examinations and its sections over 9 years*

Section	Failure rate, %
DSCE (written)	4
PERIO	6
RESTOR	10
SIM PATIENT	13
MORE THAN ONE OF THE ABOVE CONJUNCTIVELY SCORED TOTAL	4 29

NERB = North East Regional Board of Dental Examiners; ANOVA = Analysis of Variance; NERB OVERALL = Overall pass/fail results for NERB's clinical examination, all sections included; RESTOR = Restorative section of NERB's examination; SIM PATIENT = Simulated Patient section of NERB's examination; PERIO = Periodontics section NERB's examination; DSCE = Dental Simulated Clinical Examination, the written section of NERB's examination.

*Data from Ranney et al.[16]

examination and scoring system must have experienced significant variation over time also.

The conjunctive scoring method, which causes an overall failure when any section of a test is failed, provides lower reliability to a test than do compensatory methods. In the 9-year study of NERB results from conjunctive scoring, the overall failure rate was more than twice the failure rate of any single section even though failure of more than one section was a rare event (Table 3). The calculated kappa statistic for agreement of failure rates between the restorative and simulated patient sections of the examination over 9 years was essentially zero (2% ± 4%), indicating no internal reliability between sections of the test.[16]

Clinical licensure examinations rely on one-time (one-shot) observations of clinical performance of defined procedures.

Table 2. Year-to-year variation in pass rates for NERB's examination*

NERB section	Significant variation?	P value (ANOVA)
NERB OVERALL	YES	< .0001
RESTOR	YES	< .0001
SIM PATIENT	YES	< .0001
PERIO	NO	> .1
DSCE (WRITTEN)	NO	> .5

NERB = North East Regional Board of Dental Examiners; ANOVA = Analysis of Variance; NERB OVERALL = Overall pass/fail results for NERB's clinical examination, all sections included; RESTOR = Restorative section of NERB's examination; SIM PATIENT = Simulated Patient section of NERB's examination; PERIO = Periodontics section NERB's examination; DSCE = Dental Simulated Clinical Examination, the written section of NERB's examination.

*Data from Ranney et al.[16]

The reliability of clinical licensure examinations has been calculated to be far below standard expectations for a high-stakes test,[17] and experimental evidence has demonstrated that one-shot clinical observations are not reliable.[18] In that study of more than 100 students wherein 2 or more examiners judged the same student 2 or more times, by far the largest source of variation was the student by trial interaction, indicating that results were inconsistent across trials. Variation attributable to the examiners was not significant. Furthermore, generalizability increased by only a very small amount as the number of examiners increased, and not by nearly as much as could be gained by increasing the number of trials. In fact, adding an infinite number of examiners could not produce as much increase in accuracy as a single additional trial would have. So in spite of the fact that examining agencies work hard in attempting to standardize examiners, even if they were 100% successful that would not solve the problem of reliability in one-time clinical examination. The evidence is that the unreliability of one-shot clinical examinations is due instead to other factors such as uncontrolled fluctuations in patients and circumstances of examination.[18]

Validity

Although Cronbach's statement of years ago, "The most important feature of any test is the degree to which it provides a basis for a valid decision," (p. 443)[19] is still well accepted, no information is available about the predictive validity of clinical licensure examinations, ie, no published studies are available to document the extent to which performance on the examinations relates to performance in practice. Although of lesser direct pertinence than predictive validity, content validity and concurrent validity could also be considered.

Chambers[17] pointed out that the true content validity of clinical licensure examinations, i.e., the proportional sampling of the actual competencies used in practice, is quite low. Consequently, many of the skills and values needed for safe and effective practice are not tested in clinical licensure examination. Clinical examining agencies have provided no data to prove that those skills that are sampled are adequately representative, either of total required competencies or of those necessary to ensure safe entry into practice.

Therefore, nearly all of the limited available information on validity of clinical licensure examinations relates to concurrent validity, that is, studies of correlations with or comparisons to other measurements. A convergence of indicators is desirable; that is, "Persons who score high on the test ought to score high on other indicators of the same construct."[19] Table 4 summarizes the results of studies of concurrent validity for clinical licensure examinations in the United States and Canada.

A significant, positive correlation was demonstrated between performance on the Canadian national licensure examination (written and an Objective Structured Clinical Examination, or OSCE) and year 4 decile ranking across participating Canadian dental schools.[23] In Canada, examiners and educators worked together to establish a licensure examination that recognized that clinical performance is best demonstrated by multiple observations over time and therefore assessed by the faculties of its dental schools. That assessment is supplemented by an independent verification by the National Dental Examining Board of Canada through the written examination and OSCE not involving live human subjects.[26] Study of results for more than 2000 graduates of 9 schools from 1995 through 2000 confirmed the significantly positive relationship ($P < .001$) between both the OSCE and the written examination with performance in the final year of dental school.[23]

Another reported positive relationship was between the scores in endodontics on the Florida Board's examination in 2003 and performance on a mock board exam in endodontics in school.[24] In contrast to those results, no differences in performance on the endodontic mock board were found between those in the class of 2002 who failed the endodontic section of the Florida Board examination and those who passed that section. Also, there was no correlation between performance on the endodontic section of the Board and endodontic productivity in school for 427 graduates from 1996 through 2002. The significant differences between the classes of 2002 and 2003 for mean scores on the mock board endodontic score ($P < .05$) and mean scores on the Florida Board endodontic section ($P < .005$) occurred after discussions between the school and the Board, the results of which were to change the endodontic requirement from treatment of a 2-rooted maxillary premolar to acceptance of any incisor, cuspid, or premolar tooth, and some curricular changes in the school.[24] Consequently, it is not possible to tell whether the difference in performance on the endodontic clinical examinations between 2002 and 2003 was due simply to the change in stringency of the requirement (2-rooted teeth only to allowing single-rooted teeth) or had something to do with curricular change. It may suggest that there is value to educators and examiners working together in design of clinical licensure examinations. More recently, authors from

Table 4. Correlation or comparative studies of clinical licensure examinations

Reference	Correlation or Comparison	Significance*
Hangorsky 1981[20]	NERB restorative vs year 4 restorative grades	No
Casada et al 1996[21]	Texas Board score vs class rank	$P < .005$
Formicola et al 1998[8]	NERB sections vs school competency exams	No
Formicola et al 1998[8]	NERB SIM PT vs prosthetics competency	Negative
Ranney et al 2003[22]	NERB restorative vs # procedures in school	Negative
Gerrow et al 2003[23]	Canadian licensure exam vs year 4 decile	$P < .001$
Ranney et al 2004[16]	NERB restorative vs percentile class rank	No
Stewart et al 2004[24]	Florida Board endo vs school endo 1996-2002	No
Stewart et al 2004[24]	Florida Board endo vs school endo 2003	$P < .05$–$.005$
Ranney et al 2004[16]	NERB written vs percentile class rank	$P < .01$
Ranney et al 2004[16]	NERB restorative vs percentile class rank	No
Ranney et al 2004[16]	NERB PERIO, SIM PT vs percentile class rank	$P < .05$
Stewart et al 2005[25]	FL Board mean scores among class quartiles	$P < .001$

NERB = North East Regional Board of Dental Examiners; ANOVA = Analysis of Variance; NERB OVERALL = Overall pass/fail results for NERB's clinical examination, all sections included; RESTOR = Restorative section of NERB's examination; SIM PATIENT = Simulated Patient section of NERB's examination; PERIO = Periodontics section NERB's examination; DSCE = Dental Simulated Clinical Examination, the written section of NERB's examination; SIMPT = SIM Patient; FL = Florida.

*No = not statistically significant; Negative = statistically significant but negatively related.

Table 5. Pearson correlations (r) between NERB scores and dental school grades*

NERB section	Fourth-Year School Grades			Total GPA
	Operative	Fixed Pros.	Removable Pros.	
Restorative	0.0475	−0.0091	0.0300	0.0958
Prosthetics	NA	0.1502	0.1101	0.1078

NA = not applicable; NERB = North East Regional Board of Dental Examiners.

*Data from Hangorsky.[20]

the same institution reported an 8-year study (1996–2003) in which the combined first quartiles (top 25%) of the classes had a significantly better mean score for the Florida Board exams than did the combined lowest quartiles (3.62 vs 3.20), and thereby concluded a positive relationship between performance in school and performance on the board exam.[25]

Most of the other attempts to establish correlations or comparisons between results of independently administered clinical licensure examinations using live human subjects in the United States and measures of performance in dental schools have been unable to confirm a positive relationship, other than in the case of written examinations.[8,16,20-22] Those that did achieve statistical significance had very weak relationships, ie, explained very little of the variation.

Hangorsky,[20] studying 3 consecutive graduating classes (n = 271), found no significant correlations (Pearson product-moment) between scores on restorative or prosthetic procedures in a clinical licensure examination given by NERB and year 4 dental school grades in operative dentistry, fixed prosthodontics, removable prosthodontics, or total GPA (Table 5). He also found that 72% of the failures on the NERB examination at one school came from the upper and middle thirds of the class, while everyone in the bottom 10% of the class passed the clinical licensure examination.[20]

Casada and coworkers[21] looked at records of 410 graduates of one school over 5 consecutive years who took a clinical licensure examination given by the Texas State Dental Board. They found by logistic regression a statistically significant ($P < .005$) but very weak ($r = -0.15$) association between board results and class rank, but could not find a relationship with the licensure examination results for age, Dental Admissions Test (DAT) score, admission rank, national board scores, undergraduate GPA, or dental school GPA. More than half of the failures were from the upper two thirds of their respective classes.[21]

Formicola and colleagues,[8] studying graduates over 4 years, reported no significant positive correlations between school competency scores in restorative dentistry, prosthodontics, and periodontics and scores in the corresponding section of the NERB examination. There was a significant but weak negative correlation (Spearman $r = -0.17$) between the 2 measures of performance in prosthodontics, ie, those with better scores in school tended to score worse in the clinical licensure examination.

Ranney et al[22] with data from one class found that those who failed the restorative section of NERB's clinical examination, consisting of tooth preparation and placement of amalgam and composite restorations in patients, had on the average done significantly more (60 ± 6) amalgam and composite restorations in patients in school than those who passed that NERB section (47 ± 2) ($P < .01$ by t test). A significant difference in the same negative direction was true also for amalgams and composites separately. The same study also found no association of class rank with those who passed or failed the restorative section of the NERB examination.[22] In a study of 835 graduates over 9 years at the same institution, no difference was found in percentile class rank between those who passed and those who failed the restorative section of NERB's clinical licensure examination. Receiver operating characteristic (ROC) curves indicated nearly random capability for discerning percentile class rank from failure of the NERB examination as a whole or any section thereof; the only near exception being its written examination (which could have achieved approximately 80% sensitivity at 30% false positives). Mean percentile class ranks for those who passed the simulated patient and the periodontics section were slightly better than for those who failed those sections respectively, but the differences were numerically small and close to the median (45 or 46 vs 58, $P < .05$). Again, the exception (42 vs 78) was for the written section (DSCE).[16]

Given the many differences in methods there could be a number of factors underlying the different conclusions in the 2 long-term studies, one in Maryland[16] and the other in Florida,[25] but conjunctive scoring on clinical board examinations in the former and compensatory scoring in the latter may be an important one.

In survey data, the majority of dental graduates[27,28] and 82% of respondents in a survey sent to US dental school deans[29] indicated they did not believe that the clinical licensure examinations in their experiences were valid tests.

HUMAN SUBJECTS ISSUES

Other survey data indicated that more than half of responding licensed dentists "knew with certainty" of ethical problems with clinical licensure examinations. These included failure to provide follow-up care, unnecessary radio-

TABLE 6. Correlation coefficients between NERB scores and corresponding dental school competency examination scores*

NERB Section	Pearson	Spearman
Restorative	0.05	0.13
Prosthodontics	0.11	−0.17†
Periodontics	0.02	0.05

*Data from Formicola et al.[8]

†$P < .02$.

Table 7. Reliability estimates (KR20) for National Board Part II (NBDE II) and NERB's Dental Simulated Clinical Examination (DSCE)*

Year	NBDE II	DSCE
1996	0.93	0.64–0.73
1997	0.93	0.65–0.74
1998	0.92	0.37–0.71

*Data from Knapp & Associates International, Inc.[39]

graphs, treatment that was not in the patient's best interest, and creation of a lesion [carious] for purposes of the examination.[27] Ethical issues in the use of patients were the greatest concerns about clinical licensure examinations identified in the survey sent to dental school deans. These concerns included financial transactions between candidates and patients, unnecessary treatment of incipient caries, delays in treatment to hold "board lesions," treatment outside of a sequenced treatment plan, and uncertainty of follow-up care.[29] Anusavice and Benn[30] cited evidence from caries research that many carious lesions selected for surgical treatment in clinical licensure examinations should not be treated surgically. And a number of other authors have expressed concerns for ethical and other issues in the use of live patients for clinical licensure examinations.[31-35]

WRITTEN EXAMINATIONS

As already noted, the Canadian national licensure examination includes a written examination that was concurrently validated against performance in its dental schools.[23] In the United States, passing the written Parts I and II of the National Board Dental Examinations (NBDE) developed by the Joint Commission on National Dental Examinations of the American Dental Association (ADA) is required for licensure in all states.[36] Part II is intended to assess candidates' knowledge and problem-solving abilities in dental clinical sciences, and includes 100 case-based items.[37] The reliability (KR20) of Part II has consistently been above 0.90.[38] Its content validity is determined by a practice analysis conducted by surveying a sample of dentists from all licensing jurisdictions.[37]

Because the NBDE are accepted by all states, all clinical testing agencies for licensure save one have abandoned additional written examination.[15] That written section of the NERB clinical licensure examination is termed the Dental Simulated Clinical Examination (DSCE). Unadjusted reliability data (KR20) for the DSCE has been consistently lower than for the NBDE (Table 7).[38] Adjustment by assuming the DSCE is longer than it actually is, or by selecting only parts of the NBDE for comparison, can make the reliability estimates for the 2 exams appear close to each other, but that would be an incorrect use of the Spearman-Brown prophesy formula.[39] And the reliability of the DSCE is lower than that of the full-length NBDE Part II even if an adjustment for length is made.[39]

Table 8. Correlation coefficients among DSCE scores, NBDE II scores, and dental school GPA*

Comparison	Pearson r	Spearman r
NBDE II by GPA	0.75	0.75
DSCE by GPA	0.48	0.60
NBDE II by DSCE	0.59	0.73

*Data from Ranney et al.[40]

Correlations between both the NBDE II scores and the DSCE scores with GPA for 586 candidates who took both examinations from 1994 through 2002 were found to be highly significant, and scores from the 2 examinations significantly correlated with each other ($P < .01$).[40] The correlation coefficients for the NBDE II with GPA were higher than for the DSCE with GPA (Table 8). GPAs for those passing were significantly higher than those failing for both exams. There was no difference in GPA for those passing the NBDE II as compared with those passing the DSCE, and the same held when the GPAs of failures were compared between the two. Essentially, the outcomes of the 2 written examinations were the same.[40]

OTHER SURVEY DATA

Survey data showed that 96% of US dental school deans or their designated respondents thought that it was important to realize change in licensure processes for dentists. At the same time, 88% thought it *was* appropriate for dental school graduates to be evaluated for licensure by an independent third party. Thus their concern was not about independent third party evaluation, but rather about the way current exams were conducted. More than three quarters thought the evaluation should be done at the national rather than regional level. About the same proportion agreed that completion of a postgraduate year of training (PGY-1) in an accredited Advanced Education Program in General Dentistry or General Practice Residency Program should be able to substitute for clinical licensure examination.[29]

SUMMARY

Review of pertinent recent literature on clinical licensure examinations reveals the following:

1. Examining agencies have not published data to show reliability or validity of their clinical examinations.
2. There is no direct evidence (predictive validity) that clinical licensure examinations protect the public.
3. Pass rates have significantly varied among examining agencies.
4. Pass rates for at least one regional agency have varied over time.
5. Reliability of one-shot clinical examinations is too low for a high-stakes examination.
6. Studies overall fail to conclusively establish concurrent

validity of clinical licensure examinations in the United States.

7. Written licensure examination in addition to the national board examinations in the U.S. is unnecessarily redundant.
8. Concurrent validity of the written and OSCE licensure examinations in Canada has been established.
9. Perceptions of lack of validity of clinical licensure examinations and of ethical concerns for use of human subjects are commonly held among dental educators and dental school graduates.
10. Leaders of dental educational institutions in the United States believe that evaluation of graduates by an independent third party is appropriate and should be national in scope.

CONCLUSION

A national clinical licensing examination that avoids the unreliability of one-time clinical observations in human subjects, has adequate content validity, and does not unnecessarily duplicate existing national written examinations should be developed. Data on reliability in use, concurrent validity, and to the extent possible, predictive validity should periodically be collected, published, and assessed for value to the public protection function of state boards of dental examiners.

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An analysis of the contribution of a patient-based component to a clinical licensure examination

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Background. The validity and reliability of high-stakes examinations such as those used by national, regional and state or provincial dental boards are under intense scrutiny by candidates, dental schools, dental educators, dental associations, and state or provincial dental boards.

Methods. The authors followed the progress of 1,063 candidates from nonaccredited dental programs who began the National Dental Examining Board of Canada's (NDEB) clinical examinations between January 1996 and November 1999 through the administration of the examination's final component in December 2009 examine the utility and validity of the patient-based component of the examination process.

Results. The results showed that the first three components of the examination were effective in screening out candidates who were not adequately prepared to take the patient-based component. Only 12 (1.1 percent) of the candidates failed the maximum allowed three attempts to pass the patient-based component.

Conclusions. The results demonstrated that the patient-based component did not contribute to the overall examination validity or decision making and did not prevent candidates from obtaining certification.

Practice Implications. Owing to this lack of utility, the associated costs and ethical concerns, NDEB eliminated the patient-based component of the examination and replaced it with the requirement to complete an accredited, qualifying degree completion dental program followed by completion of NDEB's written and objective structured clinical examination components.

Key Words. Certification; clinical examinations; licensure.

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High-stakes examinations such as those used by national, regional and state or provincial dental boards must have demonstrated reliability and validity. The validity and reliability of these dental licensure examinations are under intense scrutiny by candidates, dental schools, dental educators, dental associations, and state or provincial dental boards.

The mandate of the National Dental Examining Board of Canada (NDEB) is to establish and maintain qualifying conditions for a national standard of competence for dentistry in Canada.[1-5] As part of this mandate, NDEB examines graduates of accredited dental schools in Canada and the United States and, until 2003, administered certification examinations for graduates of nonaccredited dental programs (other than those in the United States and Canada). Since 1996, graduates of accredited dental schools have been required to complete NDEB's written and objective

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structured clinical examination (OSCE) components successfully. A separate examination procedure for graduates of nonaccredited dental programs required candidates to pass two standardized paper-and-pencil examination components (written and clinical I) and a standardized simulated clinical component (clinical II) before participating in a patient-based clinical component (clinical III).

Criticisms of clinical licensing examination processes first were identified in 1981, when Hangorsky[6] reported consistent discrepancies between candidates' performances on clinical licensing examinations and their ranks in the graduating classes of their dental schools. In 1992, Dugoni[7] questioned the validity of clinical licensure examinations. Also in 1992, Damiano and colleagues[8] reported significant pass rate differences from year to year among candidates taking the same regional board examination, as well as among candidates taking the various regional board examinations the same year. They concluded that factors other than a candidate's clinical ability influenced the results, with the implicit culprit being the examinations' lack of validity.

The evidence suggests that patient-based licensure examinations lack validity.

Meeske and colleagues[9] surveyed recent dental school graduates who had completed board examinations and reported that the examinations were not valid assessments of clinical skills and did not reflect dental practice. Formicola and colleagues[10] conducted a concurrent validity study of the North East Regional Board of Dental Examiners' (NERB's) examination results and found no statistically significant correlations between NERB's examination component results and school grades in restorative dentistry ($r = -.05$), prosthodontics ($r = .11$) and periodontics ($r = -.02$). They reported a growing lack of confidence in the profession's ability to conduct reliable and valid licensure examinations and argued that this absence of statistically significant correlations demands that clinical licensing examinations be brought in line with professional testing standards.

Ranney and colleagues[11] compared dental school performance with NERB scores and deduced that the validity of NERB for licensure decisions was questionable. Chambers and colleagues[12] argued that the essential flaw in clinical examinations is the reliance on a "one-shot" sample of a small segment of skills, understandings and supporting values, with the resulting examination being inherently substandard in terms of validity and reliability.

Stewart and colleagues[13] conducted a retrospective study of the performance of 524 University of Florida College of Dentistry graduates between 1996 and 2003 on the state dental licensure examinations. They divided their students into four quartiles (quartile 1 [Q1], quartile 2 [Q2], quartile 3 [Q3] and quartile 4 [Q4]) on the basis of their graduating grade point averages (GPAs). They found that students in Q1 (those with the highest GPAs) did better on overall state board examination performance and on various components of the examination than did students in Q2, who did better than students in Q3, who did better than did students in Q4 (those with the lowest GPAs). In addition, Stewart and colleagues found that an increasing proportion of students from Q1 through Q4 failed the examination or specific components. However, as they assert, "a dental educator and a dental board examiner would hope that an independent licensure exam would detect those who cannot perform at a level of minimal competence, but would not 'fail' those who are competent."[13(p868)] An examination of their data suggests that the Florida State Dental Licensure Examination appears to be failing those who are competent. For example, 54.7 percent of those who failed the overall examination were in the top three quartiles in their class, as were 69.2 percent who failed the periodontics examination, 62 percent who failed the clinical Class II amalgam examination and 64.5 percent who failed the laboratory (manikin) examination. It seems reasonable to assume that those who are not competent are predominantly in Q4 of their school GPA ranking, but these data suggest that large numbers of students who do quite well in school are failing the Florida State Dental Licensure Examination. Although there are many psychometric factors (for example, restriction of range, unreliability of school examinations and clinical grades) that may act to suppress the values of the correlation coefficients between performances at school and on licensure tests, the evidence we cite suggests that patient-based licensure examinations lack validity.

The ethical issues associated with clinical examinations have been raised. Buchanan[14] pointed to the responsibility of follow-up care as a serious problem associated with the use of "humans" in clinical examinations. Feil and colleagues[15] conducted a survey of U.S. dentists concerning their experiences with ethical lapses on their clinical examinations. The respondents reported instances of not arranging for follow-up care even though it was indicated (24 percent), instances in which a lesion was created intentionally (8 percent), instances in which premature treatment was provided for the purpose of the examination (17 percent) and instances in which unnecessary radiographs were taken (32 percent).

Jenson[16] argued that the state becomes an ethical agent when it requires that candidates for licensure perform dentistry on patients. As such, the state is obligated to give full information to the patient, to obtain true voluntary cooperation, to prevent exposure of patients to increased risk, to provide oversight while unlicensed dentists practice and to provide follow-up care when adverse outcomes occur. Additionally, Formicola and colleagues[17] and Hasegawa[18] recommended that "live patients" be banned as test subjects on licensing examinations because of the ethical dilemmas created for candidates, the host institutions and dentistry. In addition, both the American Dental Association and the American Dental Education Association have adopted policies that support the elimination of the use of patients in clinical examinations.[19,20]

Because of the concerns associated with the use of patients in clinical licensure examinations, we conducted a study to analyze the contribution of the patient-based component of NDEB's clinical examination to determine its value and validity.

SUBJECTS AND METHODS

Our study included 1,063 candidates who began NDEB's clinical examination process between January 1996 and November 1999. We followed the candidates—graduates of nonaccredited dental programs—through the final administration of the clinical III component in December 2003. They were required to complete a four-component certification examination to be eligible for licensure in Canada.

The four components of the examination were written, clinical I, clinical II and clinical III. The written component consisted of two paper-and-pencil examinations given in one day during a morning and an afternoon session. The 300 multiple-choice items tested biomedical sciences, general medicine and pathology, pharmacology, periodontics, operative dentistry, endodontics, prosthodontics, orthodontics, pediatric dentistry, clinical therapeutics and oral and maxillofacial surgery. The passing score for this component was 65 percent.

The clinical I component was conducted in a one-day session and consisted of four paper-and-pencil examinations that tested knowledge of and judgment in radiographic interpretation, oral diagnosis, treatment planning and management of patient care. To pass this component, a candidate was required to achieve an average score of at least 65 percent for the four paper-and-pencil examinations, with no score being lower than 55 percent.

The clinical II component tested the ability of the candidate to perform identified restorative procedures (amalgam, resin-based composite, cast gold, ceramometal and provisional restorations) on a simulated patient. Each of the eight procedures was assigned a mark that was converted to a pass or fail result for the component by means of a scoring grid.[21]

The clinical III (patient-based) component required candidates to perform three or four restorative procedures (cast gold, amalgam and resin-based composite restorations) on patients. Each procedure was assigned a mark of pass, marginal failure or failure, and the marks were converted to a pass or fail result by means of a scoring grid.

Candidates were required to pass both the written and clinical I components before taking the clinical II component. Similarly, they had to pass the clinical II component to be eligible to take the clinical III (patient-based) component. Candidates were allowed to repeat the written, clinical I and clinical II components as many times as they wanted. For patient safety reasons, however, they were permitted a maximum of three attempts to pass the clinical III component.

To help candidates prepare for the examination, NDEB provided detailed information including sample questions, scoring criteria, grade derivation grids and lists of reference textbooks to all registered candidates.

We recorded and stored the examination results in a customized database, which provided us the opportunity to make queries and analyze the data. The data included the number of compo-

TABLE 1

Candidate performance on the three clinical components of the National Dental Examining Board of Canada examination

COMPONENT ATTEMPT	NO. OF CANDIDATES	NO. OF PASSING CANDIDATES	% OF PASSING CANDIDATES	CUMULATIVE % OF PASSING CANDIDATES
Performance on Clinical I Component				
1	1,063	565	53.1	53.1
2	334	197	58.9	71.6
3	84	56	66.7	76.9
4	22	14	63.6	78.3
5	4	3	75.0	78.6
Performance on Clinical II Component				
1	809	387	47.8	47.8
2	351	191	54.4	71.4
3	117	57	48.7	78.5
4	43	16	37.2	80.5
5-8	24	9	37.5	81.6
Performance on Clinical III Component				
1	659	456	69.2	69.2
2	196	138	70.4	90.1
3	55	43	78.2	96.7

nent attempts and results of each attempt for all components. We analyzed the data statistically to ascertain pass rates within and across component parts of the examination.

RESULTS

Clinical I component. Of the 1,063 candidates who attempted the clinical I component, 835 (78.6 percent) passed. The 228 candidates (21.4 percent) who did not pass were not eligible to proceed to the clinical II component (Table 1). A total of 565 (53.1 percent) of the candidates passed on the first attempt. Of the 498 who did not pass, 334 made a second attempt, and of these 197 (58.9 percent) passed, bringing the cumulative pass rate after two attempts to 71.6 percent. Some of those who did not pass after two attempts completed a third, fourth or fifth attempt.

Clinical II component. Although 835 candidates passed the clinical I component, 26 candidates did not proceed to the clinical II component. Of the 809 candidates who attempted the clinical II component, 660 (81.6 percent) passed. The 149 (18.4 percent) candidates who did not pass were not eligible to take the clinical III component. The pass rate on the first attempt was 47.8 percent; the final cumulative pass rate of 81.6 percent was reached after a maximum of eight attempts.

Clinical III component. Of the 660 candidates who passed the clinical II component, all but one attempted the clinical III component. After three attempts, 637 (96.7 percent) candidates passed. Among the 22 (2.1 percent) candidates in the study (N = 1,063) who did not pass, 12 (1.1 percent) failed the maximum allowable three attempts, while 10 (0.9 percent) chose to not continue after failing the first (n = 7) or second (n = 3) attempt, primarily because they enrolled in an accredited dental program.

Overall. Of the 1,063 candidates in the study, 637 (59.9 percent) successfully complete all of the components and were certified. Failure to successfully complete the clinical I and clinical II components screened out 228 (21.4 percent) and 149 (14.0 percent) of the total candidates, respectively (Table 2). Failure to pass the clinical III component prevented 22 (2.1 percent) of the total number of candidates from being certified. Of

TABLE 2

Screening of candidates by clinical components of the National Dental Examining Board of Canada examination.

COMPONENT	NO. OF CANDIDATES ATTEMPTING COMPONENT	NO. OF CANDIDATES ELIMINATED BY COMPONENT	% OF TOTAL NO. OF CANDIDATES ATTEMPTING COMPONENT (N = 1,063)
Clinical I	1,063	228	21.4
Clinical II	809	149	14.0
Clinical III	659	22	2.1

these 12 (1.1 percent) failed the component three times (the maximum allowable number of attempts), while 10 (0.9 percent) chose not to continue to take the examination primarily because they had enrolled in an accredited dental program.

DISCUSSION

The pass rate for the first attempt on the clinical I component was 53.1 percent and ranged between 58.9 and 75.0 percent for subsequent attempts. This pass rate may be due to candidates using the six months between examination attempts to prepare in depth, including participating in formal training courses conducted by dental school faculty. Increased familiarity with the test format and content, as well as improved language skills over time, also may have contributed to these pass rates.

Twenty-six candidates who passed the clinical I component did not proceed to take the clinical II component. Some of these candidates had not passed the written component and, therefore, were not eligible. Others elected not to continue in the examination process for various reasons, including enrolling in an accredited dental program.

The pass rate for the first attempt on the clinical II component was 47.8 percent and ranged between 37.2 and 54.4 percent for subsequent attempts. This fairly stable pass rate for subsequent attempts may be due in part to the same factors we outlined for the clinical I component.

When first established, the purpose of the written, clinical I and clinical II components was to screen out candidates who were not adequately prepared to take a patient-based examination, thus avoiding compromising patients' safety. Primarily because of time constraints, these components were not designed or considered to be comprehensive evaluations of all of the content areas in dentistry. The subsequent patient-based component was considered to be the component with the highest fidelity and, therefore, the component that ultimately would identify people who were not competent and prevent them from entering practice.

NDEB adopted a sequenced examination process with conjunctive scoring because it concluded that it would be unethical (and legally unadvisable) to allow candidates to participate in the patient-based component without some verification of their knowledge and clinical skills. The sequential and conjunctive nature of the examinations makes it likely that some candidates who would otherwise have failed the patient-based component would have been screened out previously.

The continued use of the patient-based component would not justify the associated costs or address the ethical concerns.

The results of our study confirmed that the candidates who had passed the clinical I and clinical II components were prepared to participate in a patient-based component, as 96.7 percent of those taking the clinical III component passed within three attempts. Anecdotal information from examiners and staff who participated in the clinical III component indicate that they generally considered it to be a fair and valuable component that was an important measure in the protection of the public. They also have commented that failing candidates frequently demonstrated a significant lack of clinical skill and judgment.

Nevertheless, almost all of the candidates who failed the clinical III component on their first

attempt subsequently passed on their second or third attempt. This occurred despite the fact that the majority of the candidates were unlicensed dentists living in Canada who were not able to prepare for their next attempt by practicing on patients.

The high pass rate and, in particular, the high second and third attempt pass rates for the clinical III component suggest that this patient-based component did not contribute to the overall validity and did not prevent candidates from obtaining certification. Furthermore, the continued use of this patient-based component would not justify the associated costs or address the ethical concerns. In contrast with the ability of the clinical I and clinical II components to screen out approximately 40 percent of candidates, the clinical III component prevented only 1.1 percent of candidates from being certified as as a result of their failing the component in the allowed number of attempts.

Although the written, clinical I and clinical II components appear to have effectively screened out candidates unprepared to take a patient-based component, we cannot assume that candidates who passed these components were competent to practice, as they were not designed to be comprehensive examinations.

Therefore, after analyzing the results of the certification examination process and after an intense and lengthy consultation process, NDEB replaced the examination process for graduates of nonaccredited dental programs with the requirement that they had to complete an accredited qualifying/degree completion program followed by successfully completing NDEB's written and OSCE components. This resultant certification process was adopted by NDEB and all provincial dental boards as the most effective method of ensuring protection of the public, as it included the benefits of completing a comprehensive, accredited educational program followed by an independent verification of competency (NDEB's written and OSCE components), which is identical to the verification required for graduates of accredited undergraduate dental programs.

CONCLUSIONS

The results of our study on the validity and reliability of patient-based examinations are consistent with those of other reports[6,8,11] that concluded that these examinations are not effective methods of evaluating competence for practice.

Generalizing the results of our study to a different population of candidates or to an examination that does not use conjunctive scoring may not be valid. Nevertheless, the results of our study should cause organizations administering high-stakes, patient-based examinations to assess whether the patient-based component contributes to decision making. ■

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Board-to-Board Consistency in Initial Dental Licensure Examinations

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Abstract: The consistency between student clinical performance in dental school and performance on initial licensure examinations is known to be weak. A review of the literature failed to identify any reports of the consistency between performance on initial licensure examinations and quality of technical work in practice. This research examines the consistency of performance among candidates who took two initial licensure examinations given by different testing agencies but for the same jurisdiction within a few weeks of each other. Twenty-seven candidates from one dental school took both the California Dental Board examination and the Western Regional Examining Board initial licensure examinations in 2005 and 2006. Their performance on the patient-based amalgam and composite restorations and the root planing tests were compared in these two board settings and with various dental school measures of competence. Consistent with previous findings, school-to-board performance was barely above chance levels. Board-to-board association was also insignificant and accounted for 12 percent of the common variance in the best case. Patient-based initial licensure examinations have yet to demonstrate validity in terms of consistency of performance for candidates from one performance to the next.

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It is important to get high-stakes testing right. A four-month delay caused by an unwarranted failure on the first try at one-shot initial dental licensure costs one-third year of practice income and perhaps a missed residency, private practice opportunity, or position in the uniformed services. Currently, a one-third year of practice income is equivalent to about one year of dental school debt, plus interest.[1] A misclassification in the other direction entitles an incompetent new dentist to practice for the rest of his or her life, as we currently have no system for recertification.

The written National Board Dental Examination (NBDE) Part II has high internal reliability: generally above r=.90.[2] The reliability of one-shot initial licensure examinations is not really known. Chambers[3] has estimated the consistency from one test to another as being in the r=.40 range. This calculation was based on American Dental Association (ADA) data showing that about 97 percent of dental school graduates have an active license within one year of graduation from dental school. The r=.40 estimate is probably generous because graduates may not have an active license immediately because they are in residencies and have not taken a test, have left the country, or have not yet completed the NBDE.

Verbal and informal reports from initial licensure testing organizations often place the internal consistency of their tests in the r=.70 range or even higher. This is a measure of examiner-to-examiner consistency: for any given single performance, will examiners agree with each other on the score? Examiner agreement is not a measure of consistency in candidate performance. It does not measure the consistency of candidates on multiple occasions or the consistency between performance on a licensure examination and performance in practice. Further, candidates who fail initial licensure examinations are not allowed to practice, so there is no way to determine whether the decision of the initial licensing board was accurate in those cases. Board-to-practice consistency in performance on basic technical skills is essentially unknown.

The best research available contains information about school-to-board consistency. Ranney et al.[4] reported on a nine-year study of graduates of the University of Maryland Dental School, showing that there were no significant associations between class rank and performance on various sections of North East Regional Board of Dental Examiners (NERB) examination. Hangorsky[5] reported that the correlation between students' operative dentistry

clinical scores in an unidentified dental school and performance on the NERB restorative section was r=.45. Correlation between students' performance in prosthodontics courses and the restorative section of the NERB exam was r=-.009 and between dental school GPA and restorative performance on the NERB exam was r=.096. Performance on the prosthodontics section of the NERB exam was also weakly associated with performance in the discipline of removable prosthodontics in dental school (r=.110) and GPA (r=.108). Casada et al.[6] found a correlation of r=.149 between overall performance on the Texas initial licensure examination and GPA in a sample of 372 students at the University of Texas Health Science Center at Houston Dental Branch. A four-year study of graduates of Columbia University's School of Dental and Oral Surgery (now College of Dental Medicine) found insignificant and even negative school-to-board relationships with the NERB exam: r=-.05 for restorative, r=.11 for prosthodontics, and r=-.02 for periodontics.[7]

Although members of the dental education community tend to interpret the low school-to-board consistency as evidence that the practical licensure examination format lacks psychometric credentials, such a conclusion is not necessarily warranted. When two measurement systems designed to quantify the same characteristic disagree with each other, we can only conclude that one or both of the testing situations is inaccurate; but we do not know which is causing the problem. As medical statisticians Bland and Altman note: "When the old method has poor repeatability, even a new method which was perfect would not agree with it" (p. 149).[8]

The research reported in this article seeks to better estimate the consistency among initial licensure examinations by studying a sample of candidates who took two different board examinations within weeks of each other. Tests purporting to measure the same patient-based technical procedures were compared to estimate board-to-board consistency.

Materials and Methods

A naturally occurring experiment of the type required appeared in 2005 and 2006 in California. During the early part of that decade, a series of meetings between the California State Dental Board and the dental school deans was held, the latter being critical of the format involved in one-shot initial licensure. In 2003, candidates taking the California state boards had experienced a sharp spike in failure probability. For the decade from 1997 through 2006 (except for 2003), 6 percent of candidates from the University of the Pacific, for example, experienced failure on the first testing on the California boards. This failure rate was among the lowest of the five California dental schools. In 2003, however, the rate was 14 percent. The likelihood of this being a chance occurrence was $p<0.005$. Similar or larger jumps in failure rates were recorded by all California dental schools that year, despite no changes in applicant pool, curriculum, or examination format. This change demonstrates that one factor affecting a candidate's probability of passing the initial licensure examination is year-to-year standards adopted by testing agencies.

The California dental schools and the California Dental Association initiated successful legislative action that granted a California license to dentists who had passed *either* the California or the Western Regional Examining Board (WREB) examination, subject to passing a written test regarding the California Dental Practice Act. This resulted in a situation in which a number of students graduating in 2005 and 2006 took both the California and the WREB exams. Since 2007, the California licensure exam has not been offered to graduating dental students because the number of candidates requesting it does not justify making it available.

Three hundred ten students graduated from the University of the Pacific Arthur A. Dugoni School of Dentistry in 2005 and 2006. One hundred ninety-three took the WREB exam, with a pass rate of 96 percent; 125 took the California state board exam, with a pass rate of 90 percent. Eighteen graduates took neither examination, primarily because they moved to other parts of the country. Twenty-seven students took both the WREB and the California board exams. Scores of board candidates are made available to the school based on release documents signed by candidates. In all respects, the use and management of this dataset conform to standards for exempt clinical research protocol of the university's Institutional Review Board.

A patient-based performance examination was included on both boards for the techniques of amalgam restoration, composite restoration, and root planing. A laboratory performance exercise in endodontics was included on the WREB exam but not the California exam. Additional tests for fixed and removable prosthodontics and endodontics were

part of the California exam, but are not considered here because they were not patient-based. A written periodontics diagnosis and a prosthodontics written test were included on the WREB exam and are not considered in this article.

In-school, patient-care performance indicators were obtained from students' academic records. Scores on the board and school measures were matched using a secure code number. The school performance measures included grade point average (GPA) in lab and clinical courses and average scores on test cases, average faculty ratings, and total number of procedures performed in each of the disciplines for which licensure exam scores were available on patient-based tasks.

The primary statistic used in this study was the Pearson correlation coefficient, comparing, for example, the score students received for the amalgam test on the WREB and California examinations. Because correlation coefficients are not expressed in linear units (an r-value of .40 is not twice as large as an r-value of .20), the discussion of results is framed in terms of the coefficient of determination.[9] This is simply the r-value squared, conventionally represented R^2, and is the proportion of variance shared by the two measures; it is the proportion of all information one has to what would be needed to predict with 100 percent confidence the value of one variable given the known value of another. For example, the length of the mandible measure in inches provides 100 percent of the information needed to know the length of the same mandible measured in centimeters: $r=1.0$, $R^2=1.00$, proportion of known variance=100 percent. The correlation coefficient reflecting consistency among licensure examiners looking at a single candidate performance is said to be about $r=.70$, $R^2=.50$. Knowing one examiner's score provides about half of what one would need to know to accurately predict the other examiner's score. However, the portion of what is needed to predict the candidate's performance on the next trial of that procedure cannot be determined from this value.

A power test was performed setting $r=.70$, $\alpha=.05$, and $1-\beta=.80$. A sample size of twenty would be sufficient for a test of the hypothesis that the correlation between test scores on alternative initial licensure examinations is at least as high as $r=.70$. The sample size of thirty-seven from the naturally occurring experiment reported here is thus almost twice the required size.

Results

Table 1 shows the measures of association (correlation coefficients) for the WREB and California licensure examination performance of students from two graduating classes on three patient-based sections, one laboratory exercise, and various predictive values. The first column (board-to-board) is the

Table 1. Correlation coefficients for patient-based performance on sections of initial licensure examinations and various predictive factors

		Brd-to-Brd	Clin GPA	Test Case	Fac Rating	N Proc
Amalgam	WREB	.325	-.014	.018	-.064	.017
	California	.294	-.022	-.064	.260	
Composite	WREB	.341	.062	.052	.063	-.074
	California	.152	.226	.045	.087	
Root planing	WREB	-.029	.124	-.018	.062	.069
	California	.056	-.144	-.084	.017	
Endodontics	WREB		.292	.181	.147	.059

Brd-to-Brd=correlation between same sections of initial licensure examinations offered by two testing agencies to same set of students (n=27).
Clin GPA=cumulative grade point average of candidates while students are in dental school.
Test Case=average score on test case simulations of examined patient-based disciplines.
Fac Rating=final quarter ratings by faculty members of students' competence in various tested disciplines.
N Proc=number of procedures in relevant disciplines completed by candidates while in dental school.

Note: None of these associations is statistically significant at $p<0.05$, two-tailed test.

consistency between scores for students who took both the WREB and California examinations. The next four columns display associations between board performance and school-based performance in these disciplines. The school-based predictors include GPA in all lab and clinical courses, average test case scores (independent board simulations) in the same areas as those of the licensure examination, average of faculty ratings in the final quarter for the discipline tested on the board, and number of procedures completed by students during their educational program in each discipline.

None of the correlations shown in Table 1 is statistically significant at $p<0.05$ with a two-tailed test. There is no evidence of consistency between boards on clinical tests of the same procedures, and there are no in-school predictors of performance on initial licensure examinations.

Discussion

The results of this investigation are consistent with findings previously reported in the literature.[4-7] None of the school-to-board correlations in the present study were significant, and the largest (an r-value of .294 between overall clinical GPA and score on the California examination in amalgam restorations) explains less than 10 percent of the variance in board performance ($.294^2=8.6$ percent). In addition to the previously reported weak predictive value of clinical GPA and faculty ratings, average scores on test cases that simulate independent performance in situations that mimic licensure exams and amount of experience (number of cases completed) also fail to provide predictive information. None of these predictors is consistently better than the others, and all leave substantial amounts of unpredictable, random variation in the licensure testing context.

The more important contribution made by this study is to provide an estimate of the consistency that can be expected from one initial licensure testing situation to another (board-to-board consistency). The testing situations were a matter of weeks apart and may thus be regarded as independent tests of the same patient-based ability to begin independent dental practice. Chambers[3] reported on a method for estimating this value based on national data regarding overall failure rates and placed the equivalent of the correlation coefficient at r=.400. In the current sample, the observed correlation coefficients were r=.325 for amalgam restoration, r=.341 for composite restoration, and r=-.029 for root planing.

In this study, the estimate of consistency within the testing situation is at best less than 12 percent of the common variance. This means that more than 85 percent of the factors that account for student performance differ across the two initial licensure situations. Because the candidate's ability to practice is, per definition, understood to be common across such temporally proximate and procedurally similar examination settings, it is evident that extraneous factors play a large role in one-shot, initial licensure examinations. Examiner consistency is unlikely to account for a large segment of this random variation, a conclusion based on the care that testing agencies take in calibration. This is a discouraging conclusion since it is unlikely that further efforts at improving calibration will matter much. The most reasonable explanations for unaccounted variance include patient and situational variability. The presence of such sources of variance in dental education has already been reported.[10] It is also plausible that initial licensure examinations, in an effort to boost accuracy, are actually oversensitive to minor variations that would not be material in distinguishing the work of one practicing dentist from another. Only the variation at the extreme low end of performance should matter in the initial licensure decision.

Some potential limitations in this research are worthy of discussion. First, there is the reflexive concern over sample size. The conventional power analysis shows that this study is more than adequately powered. Sample size is, however, related to the plausibility of alternative correlation coefficient values. The range of such reasonable estimates is conventionally expressed as a confidence interval. The best guess based on the data is that the observed coefficient of determination for consistency between WREB and California initial licensure examinations on composite restorations is 12 percent. But unlike t-tests, the confidence intervals for coefficients of determination are not symmetrical around the "best point estimate." The probability that the coefficient of determination is actually as high as 50 percent involves calculating the standard error of Fisher z-transformations, a correction that is necessary because correlation coefficients have skewed distributions.[11] The chance that the true value for the coefficient of determination is .50 as claimed is $p<0.0039$. The same procedure is followed in calculating the probability that the relationship between performance on the different boards

is an absolute zero. In this case, the probability that there is no association between performance on the two boards tested in this study is $p<0.058$. The claim that there is no association between performance on the same clinical procedures on two boards is fifteen times more likely to be true than the claim that at least half of the information needed to predict future performance can be determined from a single performance on an initial licensure examination.

There is also the possibility that the WREB and California testings were not independent of each other. Perhaps students signed up for both and only took the second if they failed initially. However, this research found that 15 percent of the candidates who took both tests failed the WREB exam (the examination given at the earlier date) and subsequently took and passed the California exam. The proportion of candidates who passed the WREB exam and subsequently took the California exam is a very similar 12 percent. The hypothesis of selective second examination therefore does not appear plausible based on the data.

Research by Chambers and Loos[10] suggests that in-school consistency across multiple simulations of licensure testing will be low just as it is for board-to-board testing. It appears that patient-based assessment of technical procedural characteristics is inherently prone to high variability across testing instances, whether performed in school settings or elsewhere. The problem is that a one-shot approach is too small a work sample to justify a confident assessment of student or candidate ability. It is a law of measurement theory that consistency increases automatically when repeated independent measures are taken, even when the consistency of each measure individually is not especially strong. Only evaluation decisions made on the basis of multiple performance samples in realistic settings have the potential to provide estimates of ability needed for high-stakes decisions.

Conclusion

This research is the first to address the question of board-to-board consistency, the likelihood that candidates who perform well on one administration of an initial dental licensure examination will perform well the next time they execute this procedure in a similar setting, such as another board examination or in practice. It was found that board-to-board consistency on patient-based amalgam and composite procedures accounts for about 12 percent of the variance within the same candidate but across trials. This estimate is similar to but slightly smaller than the 16 percent estimate of overall board-to-board pass rate in a previous study,[3] but much better than the 1 to 2 percent estimates in the literature for school-to-board consistency. It appears that there was no consistency between one board testing and the other on the patient-based root planing procedures.

The finding of low board-to-board consistency is relevant to claims that might be made about board-to-practice consistency. Bland and Altman,[8] in the argument presented at the beginning of this article, state that if either part of a claimed association is known to be weak, it cannot achieve high predictive validity for the other measure. There are certainly differences between the content and format of the California and WREB examinations, but both claim to measure exactly the same thing: the candidate's suitability for independent practice in a particular state.

If initial licensure testing agencies wish to demonstrate their validity as predictors of performance following the one-shot testing format currently used, additional psychometric studies will be needed that show patterns of performance-to-performance consistency that more closely approximate the 50 to 75 percent common variance now accepted as the standard among high-stakes tests.[12] Alternatively, decisions could be made based on multiple assessments in realistic settings,[13] where a diverse array of context-embedded evidence of performance replaces the one-shot testing, regardless of whether done in dental schools or elsewhere.

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Guest Editorial

Moving Toward 21st-Century Clinical Licensure Examinations in Dentistry

Steven W. Friedrichsen, DDS

During the time frame in which this editorial was being written, most of the 2016 predoctoral dental and dental hygiene graduates of U.S. academic dental institutions were completing their studies and preparing to become full-fledged oral health care providers. One of their final hurdles is successful completion of a clinical licensure examination (CLE)—a principal component of which typically has included the use of patients in a one-time, high-stakes test that determines graduates' readiness to practice.

There is no peer-reviewed scientific evidence that correlates CLE outcomes with other validated assessments of clinical competence. Nevertheless, the exams consume vast resources in the form of time as well as direct and indirect costs to the candidates, their dental schools, and the examining community. Furthermore, the patient-based design of a CLE poses challenges to the candidates' ethics when ideal treatment plans for the patients involved are not followed or when students must pay patients to participate. The potential complications mean that, "for generations, dentists have been 'birthed' into their profession in the most brutal way possible," in the words of Dean Charles Bertolami of New York University College of Dentistry.[1] In spite of these tangible and intangible costs, the process yields no verifiable value in its ultimate objective of providing for the protection of the public.

The American Dental Association (ADA), American Dental Education Association (ADEA), and American Student Dental Association (ASDA) have issued statements, passed resolutions, and launched initiatives that seek to eliminate the use of humans in CLEs. Even with these efforts, alternatives have not been available until recently, and the exams have remained relatively static because responsibility for change lies outside those organizations.

There are 53 licensing jurisdictions (50 states, District of Columbia, Puerto Rico, and U.S. Virgin Islands) in the United States, each of which has statutory responsibility for dental licensure. Ultimately, steps to change licensure exam requirements must be taken in each of those jurisdictions and the legislative bodies that empower the licensing bodies. The various regional testing agencies that administer CLEs are charged by state boards of dentistry to provide an independent third-party assessment of the competence of graduates for initial licensure. The exams given by these testing agencies are meant to replicate the fidelity of the technical components of clinical practice.

For several decades, there has been a divide between the responsibilities and viewpoints of the licensure and education communities. The divide is not about the goal: both communities want a well-prepared and competent oral health workforce. Rather, the schism involves differences on the best mechanism for determining the competence of the licensee.

In 2014, the ADEA House of Delegates passed Resolution 5-H 2014, recommending "the elimination of the human subject/patient-based components" of CLEs and calling for a task force to "develop an action plan to transition to" an alternative licensure exam process.[2] In its report, the task force noted significant movement in the clinical licensure arena that merits the attention of dental education and emphasized that there are alternative pathways and pilots of models that grant initial licensure without completion of a traditional clinical exam.[3] The task force reported that almost one-quarter of graduating dental students currently have the availability of one or more alternative mechanisms leading to initial licensure.

Dental graduates in California, Colorado, Delaware, Minnesota, New York, Ohio, and Washington can obtain dental licensure via successful completion of all or part of an advanced education program. In Minnesota, a modified version of the National Dental Examining Board of Canada's licensure exam centers on an objective structured clinical exam (OSCE)

in lieu of the traditional exam involving patients. In California, dental students who successfully complete a Hybrid Portfolio can obtain licensure as soon as they graduate from a California dental school. Most recently, a number of dental schools have adopted a curriculum integrated format (CIF) that was started at the University of Buffalo and is designed to address some of the logistical challenges of the traditional exam while retaining the fidelity of assessing restorative and periodontal procedures.

This issue of the *Journal of Dental Education* contains two articles describing alternatives to the typical one-time, live patient exam process.[4,5] The CIF model piloted at the University of Buffalo represents transactional change,[4] while the Canadian-based model used by the University of Minnesota represents a transformational change.[5] In both models, the authors emphasize the collaboration and cooperation that are necessary elements in moving to an alternate approach.

It is notable that both the transactional change in Buffalo and the transformational change in Minnesota involved building communication and collaboration across the divide between the education and licensure communities. In the Buffalo process, the Commission on Dental Competency Assessments (CDCA) and educators and students at the University at Buffalo School of Dental Medicine worked together to develop the CIF described in the Gambacorta et al. article.[4] These innovators used an advisory board comprised of faculty, students, clinical staff, organized dentistry, and licensing exam administrators to address the challenges and engender the change. In Minnesota, the state Board of Dentistry and the School of Dentistry worked collaboratively to introduce the first non-patient-based CLE and to integrate representatives from the Minnesota Board of Dentistry into the key processes of "admissions, scholastic standing, education and policy, and competency review board" at the school.[5] In both cases, the approach of working together to resolve challenges resulted in a less "traumatic birthing" for not only the latest generation to enter the profession but for needed change and movement away from the traditional approach to clinical licensure.

Although dental education is seeing notable progress in the licensure process, there is much yet to do. We must take advantage of the season of change that is upon us to support the movement away from the use of patients and a traditional exam process that does not really reflect the competence of 21st-century dental professionals. Dental educators can support this process by looking to the outcomes of innovative licensure practices in the United States and internationally.

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diagnosis, and this information is then fed into a computer. At regular intervals the doctor's performance in accuracy of diagnosis and time taken to get to the patient are calculated. Inefficiency is an indication for a period of postgraduate education, and prompt good work is rewarded. Medical discipline of this nature is possible because the chief of department is of professorial status and there is no shortage of doctors.

Polyclinics

Since the disposal of patients is arranged by telephone there is no need for a sorting department (casualty). Patients with real emergencies are taken to the accident ward or to special departments. Since the polyclinics are adjacent to the district hospitals the doctor on duty can get immediate specialist advice by internal telephone. There are about 25 general practitioners in the polyclinic and there is a rota for emergency duties. Specialization is encouraged and we heard of one practitioner who was preparing a thesis on the wrist injuries that he had treated. There is a large supporting ancillary staff and they deal with all patients who arrive with urgent problems (except ambulance cases) as well as their own general practice. The chief doctor in the polyclinic is a consultant and his duties are mainly administrative.

Lessons for Britain

We were most impressed by three unique features of the accident and emergency services. Firstly, the organization is large and efficient and obviously this specialty has equal standing with other special departments. Secondly, all grades of staff in the ambulance service feel they have an important part to play in accident prevention. Thirdly, the casual attender does not present a problem as minor injuries and medical complaints are dealt with in the polyclinics adjacent to the district hospitals.

A service of this quality can only exist if there are enough medical personnel. In the U.S.S.R. there are 35 doctors for every 10 000 people compared with 10 for every 10 000 in the United Kingdom, and provision for health care has a very high financial priority. The lack of adequate numbers of doctors precludes the establishment of accident services in the United Kingdom on the Russian pattern, but one feature which might with advantage be adopted in certain places is the polyclinic. For example, in large conurbations where a hospital has an unusually large general practice load the provision of a polyclinic in the grounds of that hospital could lead to a considerable improvement.

This visit was organized by the British Council under the provisions of the Anglo-Soviet cultural agreement. We would like to pay tribute to the British Council for its excellent and comprehensive arrangements for our visit. We would also like to thank the officials of the Russian Ministry of Health and the many people in Russia who went out of their way to make us welcome and show us what we asked to see. The hospitality of the Russian surgeons was almost overwhelming.

Medical Education

Assessment of Clinical Competence using Objective Structured Examination

R. McG. HARDEN, MARY STEVENSON, W. WILSON DOWNIE, G. M. WILSON

British Medical Journal, 1975, 1, 447–451

Summary

To avoid many of the disadvantages of the traditional clinical examination we have introduced the structured clinical examination. In this students rotate round a series of stations in the hospital ward. At one station they are asked to carry out a procedure, such as take a history, undertake one aspect of physical examination, or interpret laboratory investigations in the light of a patient's problem, and at the next station they have to answer questions on the findings at the previous station and their interpretation. As they cannot go back to check on omissions multiple-choice questions have a minimal cueing effect. The students may be observed and scored at some stations by examiners using a check list.

In the structured clinical examination the variables and complexity of the examination are more easily controlled, its aims can be more clearly defined, and more of the student's knowledge can be tested. The examination is more objective and a marking strategy can be decided in advance. The examination results in improved feedback to students and staff.

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Introduction

Despite the increased interest in assessment procedures in medicine and the wide use of objective techniques in written examinations the clinical examination has remained largely unchanged. The use of objective tests of the multiple-choice type has been regarded as impracticable as the answer is suggested to the candidate in the test.[1] Any changes must not increase the already considerable difficulties in assessing clinical competence in the many medical students who have to be examined.

Attention has recently been drawn to some of the serious

weaknesses of the clinical examination.[8] The student's competence is usually assessed by two examiners who test his skill on a few patients. Thus the luck of the draw plays too dominant a part in the procedure, and variation in the marking standards between examiners may be conspicuous.[9] There is often confusion about what is being tested: from being a test of skills in eliciting a history, carrying out a physical examination, and interpreting the results of the examination and history the assessment may become a test of the candidate's factual knowledge. The need for a more objective approach to the assessment of clinical competence has been widely advocated.[1–7] We describe here a structured clinical examination which avoids many of the disadvantages of the more conventional methods of assessing clinical competence.

Form of Examination

As with the conventional "clinical," the examination is conducted in the hospital wards. The candidate, instead of being taken to a small number of cases by the examiner, or pair of examiners, however, rotates round several stations at each of which he spends five minutes. The stations are of two types. At the first the student is given a written instruction and has to carry out a procedure—for example, "Auscultate the praecordium for evidence of a valvular lesion" or "Read the summary of the patient's history noted below and test as you think appropriate the urine sample provided." The student while carrying out the procedure may make notes of his findings, which are for his own personal use and are not inspected by the examiners. After five minutes the student moves to a second station, where he answers questions on his findings at the previous station and his interpretation of the findings. The questions may be open-ended or of the multiple-choice type. For ease of marking we have preferred the latter, in which a common stem is followed by five alternatives, any number of which can be correct. The students record their answers on a standard answer sheet which they carry round with them.[9] The answers are marked +1 for a correct answer, −1 for a wrong answer, and 0 for a question not answered.[9]

The concept of two different types of stations is important and has two advantages. In the first place it diminishes the effect of cueing, which has concerned some examiners.[2–10] A candidate is presented with a problem to solve or an examination to be carried out without the questions which he will be asked later in front of him. When he is presented with the questions at the next station he cannot go back to rectify any omissions on his original examination. Thus the questions do not provide a check list for his examination or suggest ready solutions in his handling of the problem. The second advantage of the two-station approach is that more students can be examined at any one time. Thus, while one student is carrying out a procedure another student who has already completed that stage is answering the questions.

Students rotate through several stations (fig. 1). While the number of stations may be varied to suit the requirements of the particular examination we have found that 16 is convenient: with this the examination can be completed in 85 minutes, and with two complete rotations 32 students can be examined in a morning. Students should begin only at a "procedure" station—the odd-numbered stations. Thus, with 16 stations at time zero minutes eight students start at stations 1, 3, 5, ... 15. At five minutes those students move to stations 2, 4, 6, ... 16 and a further eight students start at stations 1, 3, 5, ... 15.

Examiners' Score Sheets

At some of the procedure stations the candidate's performance may be observed and scored by an examiner. A check list is completed by the examiner for each student. He may, for example, be asked to observe whether the candidate did or did not auscultate at the mitral area with a patient turned over on her left side. Initially a simple "yes" or "no" recording scheme was adopted (fig. 2). Later this was modified, however, (fig. 3) to allow recording of a qualified "yes." In addition to the check list, the content of which is agreed in advance by the panel of the examiners, the examiner may be asked to grade the student's general proficiency on a five-point scale (fig. 3). Stokes[8] has recently emphasized the importance in determining the effectiveness of a doctor's work of such attitudinal attributes as poise, likeability, and capacity for making a good rapport with a patient and has suggested that there should be a separate assessment by the examiner in this nebulous but crucial area. While the structural clinical examination may not be the best method of judging students' attitudes[11] some useful general observations may be made.

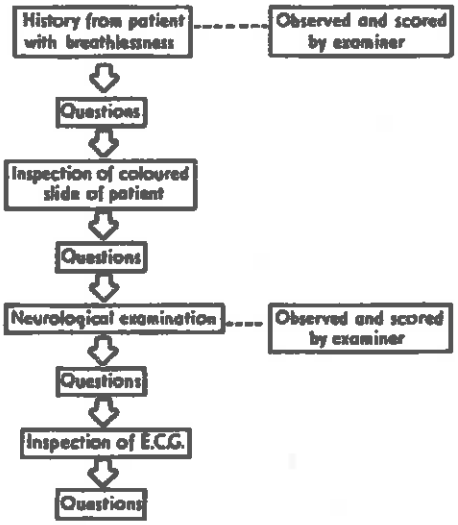

FIG. 1—Students rotate through a number of stations. "Procedure" stations are followed by those in which candidate is asked questions relating to his findings and their interpretation.

STATION NO. 1

Student's Name: No. □□□

Instructions to examiner: Please tick appropriate boxes.

The Candidate:	Yes	No
Felt the radial pulse in both limbs		
Counted the rate with a watch		
Elevated the limb to detect collapsing quality		
Located the 2nd R. space correctly		
Auscultated up the neck		
Auscultated down the left sternal border		
Sat the patient up to auscultate		
Auscultated in full expiration		
Used diaphragm for auscultation		

Date_____ Examiner's Signature_____

FIG. 2—Example of examiner's check list for station at which student was asked to "examine the pulse and auscultate for possible aortic valvular lesion."

STATION NO. 1

Student's Name: No. ☐☐☐

Instructions to examiner: Please tick appropriate boxes.

	Carried out Satisfactorily	Attempted but not Satisfactory	Not Attempted
(1) General inspection			
(2) Palpate for apex beat			
(3) Palpate for thrills			
(4) Auscultate at apex			
(5) Turn patient on L. side			
(6) Auscultate in axilla			
(7) Auscultate at pulm. area			
(8) Auscultate at aortic area			
(9) Auscultate in neck			
(10) Auscultate at L. sternal edge			
(11) Sit forward and auscultate in expiration			
(12) Auscultate at tricuspid area			

(13) General proficiency: Excellent ☐ Good ☐ Satisfactory ☐ Inadequate ☐ Grossly inadequate ☐

(14) Attitude to patient: Excellent ☐ Satisfactory ☐ Unsatisfactory ☐

Comments:

Date ——— Examiner's Signature ———

FIG. 3—Example of examiner's check list for station at which student was asked to "examine this patient's precordium for evidence of rheumatic valvular disease."

Scoring of the Examination

The student's final score is based on the number of correct and incorrect answers in the objective questions and on the score sheets handed in by the examiners. The allocation of marks between the different parts of the examination should be agreed in advance by the examiners and will vary with, among other things, the seniority of the students. Thus, with junior students greater emphasis will be placed on technique of examination and fewer marks awarded for the findings of their interpretation. It may be decided in advance that some items, though recorded, will not contribute to the final score—for example, the attitudinal assessment—but together with the other items will form the bases of feedback to the students. With the marking strategy decided in advance it is relatively simple using masks[8] and a programmable desk calculator to obtain a print out of the student's total marks for the examination and his marks in different sections of it.

Types of Questions

The student's observation and ability to recognize and interpret patterns and to record the findings as an accurate case record may be tested by asking him, for example, "inspect the hands of the patient." Alternatively, a coloured slide can be displayed. In a recent examination the students were asked to inspect and note abnormalities in a coloured slide of the hands of a patient with rheumatoid arthritis. At the next station they were asked questions such as the following:

Station 4.—At station 3 you were asked to inspect the hands of a patient. Which of the following statements is/are true?

Question 3. There is swelling of:

A. prox. I.P. joint on a 2nd finger.
B. prox. I.P. joint on a 3rd or 4th finger.
C. prox. I.P. joint on a 5th finger.
D. one or more distal I.P. joints.
E. the M.P. joints.

Question 4:

A. There is swelling of the wrist.
B. There is ulnar deviation of the hand.
C. Hyperextension of the prox. I.P. joints is present.
D. Muscle wasting is evident.
E. Purpura is present.

Examples of stations in which skills of physical examination are tested are shown in figs. 1 and 2.

The following example is a set of questions on the student's findings after he has tested motor power and reflexes in the patient's legs at the preceding station:

Station 6.—Which of the following statements is/are true about the patient you examined at station 5?

Question 5:

A. There is weakness of L. hip flexion.
B. There is wasting of the R. quadriceps.
C. Fasciculation is present in the calves.
D. Clonus is present at the left ankle.
E. The left knee jerk is increased.

Question 6:

A. Both ankle jerks are present.
B. The L. plantar is upgoing.
C. The R. plantar is upgoing.
D. There is weakness of left foot dorsiflexion.
E. There is evidence of upper motor neurone damage.

Technique in history taking may also be assessed in the examination. The fact that the examiner does not observe the candidate taking a history is one of the weaknesses of the traditional clinical examination.[1] The student is asked to take a history in a specific area as it is not possible to take a detailed comprehensive history in the time available. An example is, "Take a history from this patient who was admitted to hospital 24 hours previously with acute breathlessness," when it is an advantage if a simulated rather than a real patient is used. The simulated patient may be a doctor not known to the students who as well as acting the role of the patient can score the student's history-taking technique. A brief is given to the doctor—"You are Elizabeth Henderson, a 23-year-old nurse. You have had asthma since childhood and normally use an inhaler. You have not been in hospital before. There is no relevant family history. You smoke 10-15 cigarettes a day. You were admitted to hospital as an emergency 24 hours previously with sudden onset of breathlessness. Before this you had been given an intravenous injection by your general practitioner but the breathlessness persisted. You have not had any cough or spit or chest pain."

Using a simulated patient has some advantages. A real patient may find it trying to repeat her history many times. Moreover, the information given may vary from student to student and the co-operation of the patient may also vary. Questions such as those below may be asked at the next station on the facts elicited during the history.

Station 8.—Which of the following statements are true about the patient from whom you have just taken a history?

Question 7:

A. The patient's name is Elizabeth Henderson.
B. The patient is 26 years old.
C. The patient is a secretary.
D. She has complained of dyspnoea since childhood.
E. The present attack started acutely 24 hours previous.

Question 8:

A. Her G.P. gave her an I.V. injection prior to admission.
B. There is a family history of asthma.
C. She has a cough and purulent sputum.
D. She has complained of chest pain on R. side.
E. She uses an inhaler.

Question 9:

A. She smokes 10-15 cigarettes per day.
B. This is her third admission to hospital with similar attacks.

The student may be presented with a brief summary of a history of a patient along with an *x*-ray film, E.C.G., or result of a laboratory investigation or he may be given a urine to test. The history below was presented together with a chest *x*-ray film which showed a small pneumothorax on the right side.

A man aged 23 experienced sharp pain in the right side of his chest and in the back after a bout of coughing and subsequently felt slightly breathless. The symptoms eased but he felt uncomfortable and accordingly reported to the casualty department of the local hospital. On examination the casualty officer detected no physical signs but ordered a chest *x*-ray picture to be taken. This is now in front of you. Examine it and prepare to answer some questions at the next station. (You will not be allowed to look at the *x*-ray again after you have left this station.)

One of the questions asked at the next station was whether the following statements were true:

A. A cervical rib is present on the right side.
B. A calcified Ghon's focus is present.
C. There is a fractured rib on the right side.
D. The condition would have been more evident if a film had been taken in full forced expiration.
E. The patient should be admitted to hospital.

As part of the examination techniques such as vaginal examination or ophthalmoscopy can be assessed objectively without embarrassment or discomfort to patients using a plastic model simulator.[18]

Analysis of Results

A detailed analysis of the student's performance at each station was carried out (table I). The discriminatory power of each part of the examination was determined and the marks in one part correlated with marks in another part and with the examination as a whole (table II).

Poor Performance in Clinical Examination

The causes of failure in a clinical examination are of three types: (*a*) all-round inadequacy; (*b*) deficiency in some aspects—for example, poor technique in eliciting a history or carrying out a physical examination, incorrect attitude, or failure to recognize signs and interpret them; and (*c*) deficiency in specific subject areas—for example, neurological examination, interpretation of E.C.G.s, etc. With this type of examination it is possible to analyse separately the student's success in different parts of the examination and to obtain an overall score for techniques of examination, attitudes, and recognition and interpretation of the findings as well as for his performance in different subjects. In a recent clinical examination seven students were judged to have reached an insufficient standard to pass the examination. Of these seven three had a poor all-round performance, two had problems in recognizing and interpreting the findings, one had a poor technique of physical examination of the patient, and in the seventh the shortcoming seemed to be in one specific area—examination of the cardiovascular system.

TABLE I—*Correct Answers (+) obtained by Students 1-33 to Questions on History Taking (Station 8 see Text)*

Students	Questions											
	7A	7B	7C	7D	7E	8A	8B	8C	8D	8E	9A	9B
1							+	+	+	+		
2	+	+		+	+			+	+	+		
3	+	+		+	+	+	+		+	+		+
4	+	+	+	+	+	+	+	+	+	+	+	+
5			+	+	+	+	+	+	+	+		
6				+	+				+	+	+	+
7				+	+	+	+	+	+	+	+	+
8	+			+	+	+			+	+		
9			+	+	+	+	+	+		+	+	+
10	+	+			+	+	+	+				
11	+	+	+	+			+	+				
12	+	+	+	+	+	+				+	+	+
13	+	+		+	+		+	+	+			+
14	+	+	+	+	+	+						+
15			+	+	+	+		+	+			
16		+	+	+	+							
17			+	+	+	+		+	+			+
18	+	+	+	+	+		+	+	+			+
19			+	+	+	+	+	+			+	
20	+	+	+	+	+	+	+	+	+		+	+
21	+	+	+	+	+	+	+	+	+			+
22	+	+	+	+	+	+	+	+				
23	+	+	+	+	+	+	+	+				
24					+	+		+	+			+
25	+		+	+	+	+	+	+	+			
26	+	+	+	+	+	+	+	+	+			+
27	+			+	+	+	+		+			
28	+		+	+	+			+	+		+	+
29	+	+	+	+	+		+					
30	+	+		+	+	+	+		+			+
31	+	+	+		+	+	+	+	+		+	
32		+	+	+	+	+	+	+	+		+	
33	+	+	+	+	+			+	+		+	+
No. Correct	22	20	22	29	32	24	22	25	25	33	11	17

TABLE II—*Correlation between Results in Different Parts of One Section of Examination and between Results in section and Whole Examination. Instruction to Candidates in Section shown was "Examine this Patient's Praecordium for Evidence of Rheumatic Valvular Disease".*

	r	P
(1) Technique score on check list* *V.* total exam mark	+0·65	<0·001
(2) Proficiency score* *V.* total exam mark	+0·40	<0·05
(3) Attitude* *V.* total exam mark	+0·34	<0·05
(4) (1) + (2) + (3) *V.* total exam mark	+0·60	<0·001
(5) Questions on findings *V.* total exam mark	+0·66	<0·001
(6) Technique score on check list *V.* proficiency score	+0·62	<0·001
(7) (1) + (2) + (3) *V.* questions on findings	+0·58	<0·001

*See fig. 2.

Correlation with Performance in Written Examination

Out of a class of 99 students divided into three groups 66 were examined by a traditional clinical examination and 33 were examined by the structured clinical examination. The performance of the students in the clinical examination was compared with their performance in a written multiple-choice question examination in medicine, surgery, and therapeutics. The marks in the clinical examination did not correlate with the marks in the written examination in the two groups of students who took the traditional clinical examination ($\gamma = 0{\cdot}17$ and $\gamma = 0{\cdot}21$). In the 33 students who took a structured clinical examination, however, there was a highly significant correlation between the marks in the clinical and the marks in the written examination ($\gamma = 0{\cdot}63$).

Discussion

In the traditional clinical examination there are several variables—the student, the patient, and the examiner. In the structured clinical examination two variables, the patient and the examiner, are more controlled and a more objective assessment of the student's clinical competence is made. Moreover, it is possible to control its complexity and to define more clearly what skills, attitudes, problem-solving abilities, and factual knowledge are to be assessed. Because the examination is more objective it is more easily repeatable than the traditional clinical and standards from year to year may be more easily compared. The test samples a wider range of the candidate's knowledge and skills and can

include aspects seldom covered in the traditional clinical examination—for example, history taking in a simulated emergency admission. The marking strategy for the examination may be decided by the examiners in advance. Finally, the structured clinical examination can provide feedback to staff and to students to a much greater extent than conventional clinical examination. This is useful in directing further studies for the students and in designing teaching programmes for the staff. The examination can be used both as part of a final assessment and as part of a more continuous assessment—for example, at the end of each three-month period during the clinical years of the undergraduate's course.

The main disadvantage is the increased preparation required. As with many educational advances the benefits are achieved in part by more effort. This effort, however, takes place before the examination, and on the day of the examination the examiner's time is used more efficiently. Another possible disadvantage of this approach may be the feeling that the student's knowledge and skills are being put into compartments and that he is being discouraged from looking at the patient as a whole. We believe that this can be obviated by testing the student's competence in the more traditional type of "long case" as well or by assessing it with a tutor during his work on the wards. Finally, patients must be selected carefully for the examination and the questions organized to cause the patient the minimum of disturbance. Where a technique is being assessed—for example, testing the visual fields—each examiner may have up to three patients so that each one is examined by only every third student. The use of simulated patients also helps to spare any annoyance, inconvenience, or discomfort to patients.[12]

We thank the many colleagues in Glasgow and Dundee who have contributed material and willingly helped in conducting the clinical examination and Mr. Richard Wakeford for his help with the data handling.

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Any Questions?

Substitutes for Cross-action Towel Clips

Is there any cheap but effective substitute for the use of cross-action towel clips? Not only are these dangerous instruments, but they tear the drapes so frequently that repair is a major problem in a large central sterilisation service department.

Towel clips undoubtedly tear the drapes but a greater criticism is that they can produce painful little tears in the skin at their site of attachment, especially if tugged accidentally upon when the towels are being removed. The use of plastic adhesive sheeting, which comes from the manufacturers in already sterilized packets, avoids these disadvantages. The drapes are applied around the operation area in the usual way leaving a gap around the site of the incision. Plastic adhesive sheeting is then used to stick down the towels to the skin. This has the additional advantage of making sure that the towels drape smoothly over the operation area even when this is irregular, such as in procedures on a limb. The adhesive sheeting separates quite easily from the towels after surgery without damaging them. If this sheeting is unavailable, then Collodion or mastic may be used to tack down the drapes around the proposed incision.

Antidepressants in Cardiac Disease

Tricyclic antidepressants have been shown to be associated with an increased risk in cardiac patients. Is there any safe and effective antidepressant for patients with heart disease?

This question focuses on relative risks, and as two specialized fields are involved joint or triple consultation is often necessary to provide an answer. The choice of antidepressant rests primarily on the clinical picture of depression, and whereas younger patients with atypical pictures and superadded neurotic features are likely to respond well to a monoamine oxidase inhibitor, older patients with classical depressive syndromes respond better to tricyclic drugs or E.C.T. Patients with recurrent depressive states or manic depressive disorders are most often helped by the use of lithium carbonate, which has a prophylactic effect in the majority. The risks associated with these different approaches vary with the type of cardiac disorder and its complications affecting hepatic and renal function.

From spontaneous reports received by the Committee on Safety of Medicines, the incidence of arrhythmia from use of antidepressants of all types would appear to be very low. As selection of patients occurs in the use of these drugs in practice it is not yet possible to calculate the risks in patients already suffering from cardiac disorders. It seems also likely that the risk of using monoamine oxidase inhibitors in this context is in the production of hypotension rather than in causing arrhythmias. A choice of inappropriate drug for the individual sufferer lessens the chance of improvement, thus creating the risks associated with delayed recovery. Having chosen the appropriate treatment, the risks of using it—assessed by a cardiologist—should be weighed against the risks of leaving the depressed patient untreated. These risks are: suicide or attempted suicide and occasionally infanticide or homicide (the risk of suicide is likely to be higher in physically handicapped patients); increased cardiac disability due to an increased cardiac load from agitation and, in some cases, hypertension; potentially irreversible effects of the illness on the patient's life; hospitalization; and malnutrition. Whereas in most patients with cardiac disorder, the relative risks can be readily assessed, in cases of doubt the appropriate antidepressant should be introduced cautiously after admission to hospital so that any early effects can be seen clinically.

Works in Progress: A Comparison of Dental School Experiences Between Passing and Failing NERB Candidates, 2001

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Abstract: The purpose of this report is to compare outcomes on the North East Regional Board of Dental Examiners (NERB) clinical examination to selected measures of academic performance in one U.S. dental school. The data came from results of the spring 2001 NERB examination at that school. Five measures of academic performance—number of Class II amalgam restorations completed, number of Class III/IV composite restorations completed, fixed prosthodontic units performed, fourth-year class rank, and GPA—were compared between those who passed and those who failed NERB's restorative exercise (RESTOR) and provisional fixed partial denture exercise (SIM). Analyses could not confirm a positive relationship between the school performance measures and the NERB outcome of passing RESTOR on the first attempt. On the other hand, those who passed SIM on the first attempt had, on the average, performed more amalgams, composites, and fixed prosthodontic units as students than those who failed; they also had, on average, better class rank and higher GPA. Therefore, only performance on SIM related to performance in school. However, both RESTOR and SIM had a similar number of failures from the top as well as the bottom portions of the class. These preliminary data from one dental school class raise questions about the validity of the NERB clinical examination for licensure decisions.

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Licensing practices for dentists in the United States continue to be controversial. Issues include questions about validity of clinical licensing examinations,[1] significant variation in pass/fail rates among examining agencies,[2] and ethics of using human subjects (patients) in the examinations.[3-5] However, proponents of clinical licensing examinations argue that independent examination is essential for protection of the public.[6]

One might assume that those who fail a clinical licensure examination would have poorer academic records than those who passed. That postulated relationship, however, is not clear in the relatively few studies that have been performed.[7-9] The North East Regional Board of Dental Examiners, Inc. (NERB) in its report from the 2001 Steering Committee/Educators' meeting[10] posed the question, "Is there a correlation between the number of procedures a dental student completes in dental school and his/her performance on clinical licensure examinations?" The same report postulated that there probably would be a positive relationship.

Therefore, this study examined retrospectively the relationship between measures of academic performance in a dental school and performance as candidates in a clinical examination administered by NERB.

Methods

The material for study consisted of results of the spring 2001 examination given by NERB at the Dental School, University of Maryland. The Institutional Review Board, University of Maryland, Baltimore determined this research to be exempt from the IRB approval process.

The eighty D.D.S. graduates of Maryland's dental school who took the NERB examination in May 2001 provided the sample for this study. Results from two exercises of the NERB examination—the Restorative Exercise (RESTOR) and the Physiologic Interim Restoration (or Simulated Fixed Partial Denture)—were analyzed. RESTOR consisted of tooth preparations and placements of a Class II amalgam and a Class III or IV composite restoration in patients. The Physiologic Interim Restoration was one part of an exercise using a manikin, consisting of abutment preparations and fabrication of a provi-

sional fixed partial denture. The total manikin exercise also included an endodontic procedure, which was not included in this study because we do not have results on that procedure for all eighty graduates in the sample. Individual results of the entire manikin section for those candidates who provided permission to NERB for release to their respective school of graduation were reported to the schools under the heading "SIM PATIENT." For differentiation from the complete manikin exercise, the provisional fixed partial denture part of SIM PATIENT is abbreviated as "SIM" in the remainder of this paper.

Only about two-thirds of the graduates from the school provided written permission to NERB to release results. Therefore, another method than the school report from NERB was necessary to account for all of the graduates who did take the examination. Accordingly, those who failed either the amalgam or composite sections were identified from reports on follow-up forms provided to the school's NERB Coordinator by NERB's Chief Examiner for each failed portion of RESTOR at the time of the examination. Candidate failures on SIM were enumerated by inspection by one of the authors of the actual preparations and provisional fixed partial dentures and the respective assigned scores at NERB headquarters. The number of completed Class II amalgams and Class III or IV composite restorations and the total number of units of fixed prosthodontic restorations performed by the eighty candidates were determined from the school's electronic clinic information system (DENSYST). DENSYST captures all treatment for which there is a charge to a patient, including the identity of the student provider of the treatment. Restorations are entered as completed only when all steps, including finish and polish, have been approved by faculty. Four-year grade point averages (GPA) and class rank were determined from academic records in the dean's office.

The mean differences in class rank and number of procedures between individuals who passed or failed either section of the NERB examination were evaluated with two-sample t-tests. Additionally, these results were further evaluated by the nonparametric Wilcoxon signed rank test. Concordance between failures on the RESTOR section of the examination and the SIM PATIENT portion of the test was evaluated by Fishers Exact Test, which was also used to examine the relationship between failures in the respective top and bottom fifteen of the class ranks in the sample. Probability levels of 0.05 were considered statistically significant.

A power analysis was performed to find the smallest difference between groups (pass-fail) that could be found based on the following assumptions: a two-sided t-test, an alpha of 0.05, 80 percent power, and the variability in the data in Table 1. The power in this study under those assumptions would allow differences to be detected between passing and failing groups for: number of amalgams, 4.9; number of composites, 5.6; total number of amalgams and composites, 9.1; number of fixed prosthodontic units, 2.8; GPA, 0.16; and class rank, 12.5.

Results

Table 1 compares the mean dental school measures between candidates who passed and those who failed the RESTOR section of the NERB examination. Twenty-five candidates failed; fifty-five passed. By two-sample t-test, it appeared that students who passed completed significantly fewer amalgams, composites, and total restorations (amalgams plus composites) than those who failed the RESTOR section. However, the nonparametric Wilcoxon signed rank test did not yield $p < 0.05$ for those comparisons. Neither four-year GPA nor class rank differed

Table 1. Mean (± s.e.m.) numbers of amalgams, composites, and fixed prosthodontic units (FPU) performed as students, GPA, and class rank for candidates who failed (F) or passed (P) the restorative exercise of the NERB examination

Measure	Failed (N = 25)	Passed (N = 55)
Amalgams*	25.64 ± 3.03	18.82 ± 0.93
Composites†	34.44 ± 3.09	28.65 ± 1.28
Amalgams plus composites*	60.08 ± 5.76	47.47 ± 1.64
Fixed prosthodontic units	20.24 ± 0.89	21.82 ± 0.86
GPA	3.10 ± 0.07	3.22 ± 0.05
Class rank	53.00 ± 5.33	43.73 ± 3.46

*$p < 0.01$ by two-sample t-test
†$p < 0.05$ by two-sample t-test

Table 2. Mean (± s.e.m.) numbers of amalgams, composites, and fixed prosthodontic units (FPU) performed as students, GPA, and class rank for candidates who failed or passed the physiologic interim restoration (temporary bridge) exercise of the NERB examination

Measure	Failed (N = 25)	Passed (N = 55)
Amalgams*	16.24 ± 1.27	23.09 ± 1.55
Composites*	24.64 ± 1.90	33.11 ± 1.61
Amalgams plus composites*	40.88 ± 2.46	56.20 ± 2.78
Fixed prosthodontic units†	19.40 ± 0.99	22.20 ± 0.82
GPA†	3.07 ± 0.07	3.24 ± 0.04
Class rank†	55.32 ± 5.57	42.67 ± 3.31

*$p < 0.01$ by two-sample t-test and the Wilcoxon signed rank test
†$p < 0.05$ by two-sample t-test and the Wilcoxon signed rank test

significantly by either test between the passing and failing groups on RESTOR.

Table 2 provides comparisons for those who passed or failed the provisional fixed partial denture section (SIM) of the NERB examination. All failures were attributable to the provisional restoration, not to preparation(s) alone. Again, twenty-five failed and fifty-five passed, but these were not generally the same individuals who respectively failed or passed RESTOR. This was confirmed by the lack of concordance in the Fisher Exact Test ($p > 0.3$) between those passing RESTOR and those passing SIM. Students who passed SIM did perform on the average significantly more restorative experiences than those who failed ($p < 0.01$). Students who passed SIM also had higher mean GPAs and better class rank ($p < 0.05$).

Among the candidates whose class rank was in the top fifteen, four failed RESTOR, and four failed SIM. Again, these were not in most cases the same individuals. Among the candidates who ranked in the bottom fifteen of the class, six failed RESTOR, and eight failed SIM. Neither comparison was statistically significant. Scatter diagrams of the distribution of all passing and failing candidates by class rank appear as Figure 1 and Figure 2.

Discussion

Although it appeared by t-test that candidates who passed NERB's restorative exercise (RESTOR) actually completed significantly fewer restorations than those who failed, this observation was not confirmed by nonparametric analysis. This suggests that outliers in the sample unduly influenced the t-test, and thus interpretation of this test should be made only with considerable caution. Nonetheless, it is safe to conclude that those in this sample who passed RESTOR did *not* perform more restorations as students than those who failed. We were not able to iden-

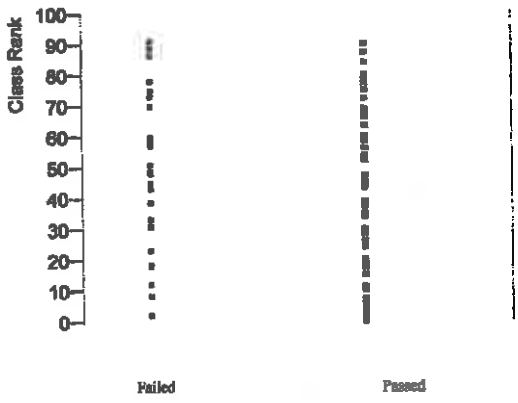

Figure 1. Scatter diagram of class rank for students who passed or failed the RESTOR portion of NERB. Class rank (best =1) is based on grade point average.

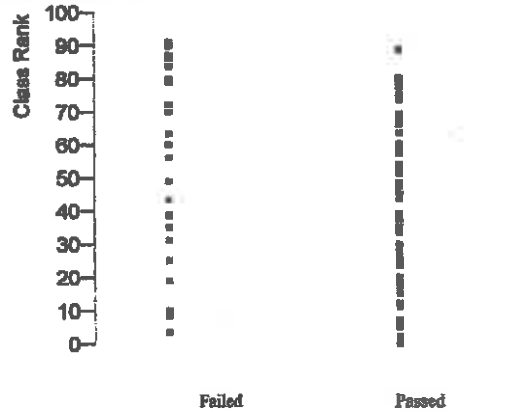

Figure 2. Scatter diagram of class rank for students who passed or failed the SIM portion of NERB. Class rank (best =1) is based on grade point average.

tify a prior study that investigated the relationship between licensing examination performance and the particular academic measures studied for this paper. However, our results appear to be consistent with the conclusion that no particular characteristic in the experience of the candidate predicts the outcome of a clinical licensing examination.[7]

We also found no relationship between pass/fail outcome on the RESTOR section of the NERB examination and the more general indications of academic performance of class rank and GPA. This is consistent with the report by Hangorsky[8] who found no correlation between class rank and passing a clinical board examination.

Candidates who passed the provisional fixed partial denture exercise (SIM) of the NERB examination had on the average better general academic performance and more operative experience in dental school than those who failed that section. Thus, in contrast to the RESTOR section, a passing performance on the SIM manikin exercise appeared to relate positively to measures of performance in this dental school for the Class of 2001. Interestingly, a positive relationship between class rank and clinical performance as a student with results of a board examination was also found in Ohio in an examination that did not use procedures in patients (human subjects).[11] The findings in this study for SIM may also be consistent with the results of Casada et al.,[7] who reported a statistically significant but weak association between class rank and passing a clinical board examination. Perhaps a reason for the finding that SIM related to dental school performance while RESTOR did not was that the human subject element, which is a source of intrinsic variability, was missing from SIM. An additional potential advantage of simulation is that the validity of the exercise could be evaluated by field-testing it with practicing dentists, dental school faculty, and members of the examining community for setting criteria for passing. This cannot be done for the RESTOR section of NERB or other examinations of treatments of live patients because of the variation attributable to their use.

One of the difficulties for many dental schools in performing the type of study reported here and suggested by NERB[10] is obtaining an adequate sample size for reasonable power to see differences. Maryland's dental school has a larger than average class size, and in spring 2001 it had a substantially larger failure rate on the NERB examination than is usual for this school. The magnitudes of differences detectable with the power of this study provided reasonable bases for our conclusions limited to this one examination. However, caution should be exercised in attempts to generalize these findings until duplicated in other settings over a number of years. Efforts should be made to extend similar studies across multiple years and multiple institutions.

We are presently analyzing data from the performance on NERB examinations by the graduating classes of 1994 through 2002. We will not be able to extend analyses to those multiple years for all of the academic measurements performed for the present study because the clinical database on completed restorations by students has not been maintained from year to year. We also will not be able to analyze performance on the physiologic interim restoration over multiple years because NERB does not report to the school those results for individual candidates separately from the other portion of its manikin exercise. Rather, an individual's performance is reported by NERB for the physiologic interim restoration and endodontics exercises as a combined score. We also will be unable to account for every graduate who took the NERB examination in those multiple years as we did for the present study because NERB did not report data for those who did not give explicit permission to do so and we have not maintained from year to year the individual reports from NERB's chief examiners. However, we will be able to compare passing and failing groups for the various sections of NERB over the nine-year period with respect to GPA and class rank, provided we find that those for whom we have no NERB data were not different by those academic measures from those for whom we do have data. We do not receive reports of performance of our graduates examined by NERB in other locations than here or by other examining agencies.

Analyses over multiple institutions will be hampered by similar limitations, compounded by differences in academic measures among schools. For at least those schools that use grades other than pass-fail, however, it should be possible to utilize class rank in comparisons of passing and failing candidates on licensure examinations. That would be a worthwhile effort for the future.

Clinical examinations by regional testing agencies like NERB are utilized by legally authorized state agencies, generally state boards of dentistry or similar title, for making decisions about granting licenses to practice. As such, those examinations are tests, the results of which have meaningful consequences for the individual candidate and for the public. Test results have features related to *reliability* and *valid-*

ity that are important for evaluating the quality of the decisions that may be made based on them. *Reliability* relates to the consistency between sets of measurements,[12] whereas *validity* relates to the accuracy of an inference made from a test score.[13] In the case of NERB's clinical test of graduating dental students, the inference to be made by the state board using the score is the likelihood that the candidate can safely practice dentistry at an entry level. Stanley[12] pointed out that, in selecting a test and interpreting its results, one should first give attention to the validity of the test for the decision to be made. Given adequate validity of several instruments for the decision purpose, one would then generally choose the one from among them that is most reliable.

Several types of validity exist.[13] Content validity for dental licensing examinations would relate to how well the skills and knowledge sampled by the test reflect those for which the license is to be issued. Construct validity and decision validity (in our case, how well the test enables an appropriate decision for granting or denying a license) are broader, involving every part of the setting for the test, and whether the test results can generalize to a prediction of behavior in practice, including years into the future. Validity relates directly to the accuracy of the prediction. We know of no study comparing results of examination by NERB to behavior in practice.

There are, however, several disturbing implications of the present study for the validity of NERB's clinical test because testing theory says that "persons who score high on the test ought to score high on other indicators of the same construct."[13] Therefore, if performance in dental school and performance on the NERB licensing examination relate to the same construct, persons who score high in school should score high on the NERB examination. If additional longitudinal research confirms that there is no relationship between experience in dental school in doing amalgam and composite restorations that are evaluated by dental school faculty and the ability to pass the restorative exercise of the NERB examination, then the validity of licensing process is questionable. With respect to such discrete measures, errors of evaluator leniency (e.g., the "halo effect") in the school setting can contribute to differences between composite grades, including daily grades, and single practical examinations.[14]

Assignment of grades in this school for courses that include clinical performance varies somewhat at the departmental level, with some combination of daily grades, competency examination grades, and didactic component grades comprising the final grade. In no third-year clinical course does the final grade depend entirely or in the majority on daily clinical grades. In the fourth year, the grade in the clinical courses in operative dentistry and prosthodontics is derived two-thirds from daily grades and one-third from competency examinations, while grades in other disciplines continue to rely less on daily clinical grades than on other measures. Thus, daily grades are not the major determinant of class rank or GPA, making it unlikely that the findings of Berrong et al.[14] that daily grades are inflated and do not differentiate between poor and acceptable performance account for the results of this study.

The lack of relationship between class rank and the RESTOR section of the NERB examination found in the present study, again if confirmed by study over time, would reinforce concerns about the validity of RESTOR for decision purposes. Composite measures, such as represented here by class rank, offer the potential value of combining multiple criteria. Decision rules can benefit from the use of multiple criteria.[13] The validity of decisions made for or against licensure thus might be improved if measures of performance during school were included as information for the decision.

An expectation that failures should cluster from the bottom of the class was not fulfilled in the present data for either RESTOR or SIM. Thus, even if one were to argue that a certain margin of error in a licensing examination for detecting the least-qualified individuals is permissible for the sake of protecting the public from those who are incompetent, the present results indicate that those being "caught" are not consistently from the low end of the class. Several candidates from the top portions of the class were included among the failures, and both failures and passing results were distributed widely among the class ranks as shown in Figures 1 and 2.

Finally, despite the high failure rate in the initial examination in RESTOR and SIM, the final report for 2001 for this school from NERB (as for nearly all other participating schools) indicated that 100 percent of candidates who availed themselves of all opportunities to pass the NERB examination did ultimately pass. This is not explainable simply by the possibility that few of those who failed retook the examination—because only 9 percent had not retaken it by August 31, 2001.[15] Candidates did not have an opportunity to remediate their skills for the RESTOR portion of NERB between examinations because they cannot practice without a license, they

were no longer in dental school, and the school provided no other remediation. Thus, a number of candidates who failed the examination on a first try succeeded at a later time without enhancing their skills through instruction or practice. One must ask, therefore, whether it was justifiable to fail them in the first place or whether the problem of gaining eligibility for licensure resided substantially more with the nature of the examination than with the candidates. Questions about the validity of the licensing examination inherently raise questions also about the ethics of using human subjects (patients) in the process.[3-5]

Conclusions

Passing the simulated fixed partial denture exercise on a manikin, but not the restorative section, given by NERB at the University of Maryland in May 2001 had on the average a positive relationship to performance in dental school. Passing the failing NERB candidates in both exercises were distributed widely from the top to the bottom class ranks. These results raise questions of validity of those sections of the NERB examination for licensure decisions.

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Relationship Between Performance in Dental School and Performance on a Dental Licensure Examination: An Eight-Year Study

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Abstract: This study assessed relationships between academic performance in dental school and "first attempt" performance on a state dental licensure examination for 1996-2003 graduates from the University of Florida College of Dentistry (UFCD). The 524 graduates were ranked into quartiles based on graduating GPA. Using analysis of variance (ANOVA), the students' mean exam score (or exam section score) for each respective quartile (n=131) was compared with mean score for graduates in the combined four quartiles (n=524). ANOVA assessments, by quartile, were performed for the following six measures: 1) overall composite score on the dental licensure exam, 2) clinical periodontics section, 3) clinical amalgam section, 4) combination of clinical periodontics and clinical amalgam, 5) laboratory (manikin exam) with a written prosthodontic exam, and 6) manikin exam without the prosthodontic exam. For the overall exam and all exam sections, a significant ($p<0.001$) relationship was found between higher mean exam scores and academic ranking in quartile 1. A significant relationship was found between performance (lower mean scores) and ranking in quartile 4 for all exam sections, with the exception of the clinical periodontal section. The results of this study indicate a correlation between performance in dental school and performance on the Florida dental licensure exam for 1996-2003 UFCD graduates.

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Key words: dental licensure exam, exam performance predictors, academic ranking

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Dental licensure examinations have been the focus of intense review and discussion in recent years. Issues related to the use of "live" patients include both ethical and standardization concerns.[1-5] Questions have been raised about examination reliability and validity.[5-9] The use of dental portfolios has been suggested as a viable means of achieving psychometric standards for initial licensure decisions.[9] Predictors of performance on dental licensure exams have been reviewed in light of the importance of these outcomes to the graduate and also because of the emphasis placed on student performance as a benchmark for assessing the effectiveness of dental school curricula.[10,11]

One might anticipate a positive relationship between dental school performance and successful first attempts on clinical licensure exams.[12] However, current reports in the dental literature yield inconclusive results. A recent eight-year retrospective analysis involving University of Florida College of Dentistry graduates and the Florida dental licensure exam found no significant relationship between senior mock board performance and numbers of clinical procedures and successful performance on the licensure exam, but did find a significant relationship between the clinical Class II amalgam procedure on the mock board and subsequent licensure exams.[10] A report looking at a single year's results from an examination given by the North East Regional Board (NERB) could not confirm a positive relationship between the school performance measures (clinical procedures, fourth-year class rank, and GPA) and the NERB outcomes of passing the clinical restorative procedures (Class II amalgam and Class III or IV composite) on the first attempt. In addition, a wide distribution of class ranks was found

in groups that both failed and passed the NERB examination. However, a positive correlation was observed between academic performance and those who passed the manikin (SIM) portion of the NERB.[8]

A more recent report indicated that, over a nine-year period, there was no significant difference in class rank percentile between those who passed the RESTOR section (restorative clinical exercise) of the NERB examination and those who failed it.[11] The power of this report was that it used data from a nine-year period. Its authors concluded that future studies would be helpful to determine if trends could be generalized to other schools and testing agencies.

To help elucidate the relationship between performance in dental school and performance on a dental licensure examination, this study was conducted using scores from 1996-2003 University of Florida College of Dentistry (UFCD) graduates' "first attempt" on the Florida dental licensure examination and their academic performance measured by graduating GPA.

Methods

The University of Florida Institution Review Board granted approval for this project. The study population consisted of UFCD graduates from 1996 through 2003 who attempted the Florida dental licensure exam immediately upon graduation. The total number of subjects (n=524) included 356 males and 168 females.

The composition of the Florida dental licensure exam did not experience a major design revision during the eight years of this analysis. A revision of the manikin portion was implemented beginning with the June 2000 exam. A Class II composite restoration was added; and a pin-amalgam preparation and restoration were deleted. In addition, a three-unit bridge preparation was added, and the single-unit fixed abutment preparation was deleted. The selected clinical procedures and subject content for the written portions have remained constant over time. The patient-based clinical procedures of the state licensure exam consist of a Class II amalgam preparation and restoration, which comprises 25 percent of the exam, and clinical periodontal scaling and root planing on five teeth, which comprises 15 percent of the total licensure exam. A simulated or laboratory section constitutes 60 percent, which includes five dentoform procedures and a written prosthodontic exam. The five manikin procedures include a fixed bridge preparation (20 percent), a Class II composite restoration on a preprepared tooth (10 percent), a Class II amalgam restoration on a preprepared tooth (5 percent), a Class IV composite restoration (5 percent), an endodontic access and obturation on an extracted natural anterior tooth, a premolar, cuspid, or incisor (10 percent), and a written prosthodontic examination (10 percent). Scores range from 0 to 5 on each procedure. To receive Florida dental licensure, the candidate must achieve a composite grade of 3.0 or higher on these procedures, plus pass the written examination on Florida Laws and Rules with a score of 75 percent or higher.

For purposes of assessment, dental school performance was compared with performance on the entire exam and on the clinical and laboratory sections. More specifically, examination performance was grouped into six sections as follows: 1) overall state licensure board examination score, 2) clinical periodontics section, 3) clinical Class II amalgam, 4) combined score on Class II amalgam and periodontics, 5) laboratory (manikin exam) with the prosthodontic written exam, and 6) manikin exam without the prosthodontic written exam. Subsections #2-#6 consisted only of candidate performance on that specific section. A significant relationship was assumed at $p<0.001$.

Graduates from each year were placed in quartiles, based on graduating GPA. For example, the top 25 percent of each graduating class from 1996 to 2003 comprised quartile 1 for this analysis. The bottom 25 percent of each graduating class was combined to comprise quartile 4. Quartiles 2 and 3 were developed in a like manner. The initial quartile ranking was done for each year to avoid possible influence from grade inflation during the eight years. Each quartile contained 131 students. Using analysis of variance (ANOVA), the students' mean exam score (or exam section score) from each respective quartile was compared with the mean score for graduates in the combined quartiles (n=524). To assess whether changes implemented in June 2000 would impact the composite ANOVA results, analysis for each separate year was conducted. While N per quartile was low, no significant differences ($p<0.01$) were detected.

To further characterize the relationships, a second analysis was conducted to determine the percent of students who failed the exam (or exam section) in each academic quartile. The intent of the second analysis was to enhance the understanding of relationships between performance in dental school and performance on the dental licensure examination.

Results

Tables 1-6 provide two analyses for each licensure exam section. The first analysis is results of ANOVA by quartile for each of the six licensure exam groupings. The second is the performance distribution by quartile. For each exam section, the number and percent of graduates who passed and failed the exam or exam section are provided by quartile.

During the eight years, 524 UFCD graduates attempted the Florida dental licensure exam. From that group, 85.7 percent (n=449) passed the examination on the first attempt, and 14.3 percent (n=75) failed. Table 1 shows relationships between overall performance on the Florida dental licensure exam and performance according to quartile ranking. Significant ANOVA relationships ($p<0.001$) were observed between mean exam scores for graduates in Q1 and in Q4 and overall performance on the state licensure exam. Those in quartile 1 had a significantly higher mean score on the licensure exam compared with the mean score for all quartiles combined. Those in quartile 4 had a significantly lower mean performance score than the mean score for all quartiles combined. The performance distribution by quartile on Table 1 demonstrated interesting findings. Of the 131 graduates in quartile 1, 3.8 percent (n=5) failed the overall licensure exam during this eight-year analysis period. A slightly higher number, ten graduates, 7.6 percent, in quartile 2 failed the board exam. Twenty-six (19.8 percent) of graduates ranked in quartile 3 failed the licensure exam, and the highest number (n=34), or 26 percent, from quartile 4 failed the state board examination.

Tables 2, 3, and 4 demonstrate relationships for the clinical portions of the licensure exam. Table 2 shows relationships for performance on the clinical periodontic portion of the exam. Of the 524 graduates, 79.6 percent passed the clinical periodontic section. A significant ($p<0.001$) relationship was detected between the mean performance of graduates in quartile 1 vs. all graduates. The mean score, 3.64 for quartile 1, was significantly higher than the mean score for the combined four quartiles: 3.36. There was no significant relationship between the mean score of candidates in quartiles 2, 3, or 4 when compared with mean score of all graduates. Looking at quartile distribution and performance, 13.7 percent from quartile 1 failed this section of the exam. Sixteen percent from quartile 2 failed this section, 26.7 percent from quartile 3, and 25.2 percent from quartile 4 failed the periodontic section.

Table 3 shows relationships for performance on the clinical Class II amalgam procedure. Of 524 graduates, 75.4 percent passed this section. Significant relationships were found between quartile 1 and quartile 4 and all graduates. The mean score for graduates in quartile 1 was 3.60, which was significantly higher than the mean score for all quartiles: 3.34. In contrast, the mean score for those in quartile 4 was 3.05, significantly lower than the mean of all quartiles. No significant relationships were detected for quartiles 2 and 3. The quartile performance distribution indicated that the fewest failures occurred in quartile one: 12.2 percent. With each succeeding

Table 1. Overall state board exam performance

ANOVA by Quartile

Quartile	Mean Score	p Value
Q1	3.62	<0.001
Q2	3.48	0.054
Q3	3.29	0.010
Q4	3.20	<0.001
All Quartiles	3.40	

Performance Distribution by Quartile

Quartile	Failed State Board (No.)	Failed State Board (%)	Passed State Board (No.)	Passed State Board (%)
Q1	5	3.8	126	96.2
Q2	10	7.6	121	92.4
Q3	26	19.8	105	80.2
Q4	34	26.0	97	74.0
All Quartiles	75	14.3	449	85.7

Table 2. Clinical periodontics section performance

ANOVA by Quartile

Quartile	Mean Score	p Value
Q1	3.64	<0.001
Q2	3.46	>0.05
Q3	3.20	<0.05
Q4	3.16	<0.05
All Quartiles	3.36	

Performance Distribution by Quartile

Quartile	Failed Perio (No.)	Failed Perio (%)	Passed Perio (No.)	Passed Perio (%)
Q1	18	13.7	113	86.3
Q2	21	16.0	110	84.0
Q3	35	26.7	96	73.3
Q4	33	25.2	98	74.8
All Quartiles	107	20.4	417	79.6

quartile, the number of failures increased. This is consistent with findings in Table 1 related to the exam in its entirety, but not consistent with the performance on the periodontal section. Table 4 demonstrates relationships between performance on the combined clinical procedures, the Class II amalgam and periodontics procedures. Of the total number of graduates, 75.0 percent passed and 25.0 percent failed this section. This result was very similar to the pass rate for the clinical amalgam section. Consistent with trends noted in Tables 1 and 3, significant relationships were found between quartile 1 and quartile 4 and mean scores for combined quartiles. The mean score for those in quartile 1 (3.61) was significantly higher than the mean score for combined quartiles: 3.35. The percent of failures increased as the class rank decreased. The failure rate from Q2 was 13.7 percent, from Q3 was 33.6 percent, and from Q4 was 39.7 percent.

Table 5 provides relationships between performance on the simulated section, consisting of the manikin exam and written prosthodontic exam. The overall pass rate for this section was 79.8 percent. ANOVA detected significant relationships between Q1 and Q4 and the mean scores for combined quartiles. The mean score for those in quartile 1 was 3.56, significantly higher than the mean score for combined quartiles: 3.36. The mean score for quartile 4 was 3.22, significantly lower than the combined quartiles. Mean scores for Q2 and Q3 demonstrated no significant relationships with the mean score for the combined quartiles. Quartile 1 contained the lowest percent of failures, 8.4 percent. As the class rank decreased, the number of failures increased. The failure rate for Q2 was 14.5 percent, for Q3 was 25.2 percent, and for Q4 32.8 percent.

Table 6 demonstrates relationships for performance on only the manikin section. Of the total subject pool, 67.2 percent passed and 32.8 percent failed this section. This section demonstrated the highest failure rate of all exam sections. Significant relationships were detected between the mean scores of Q1 and Q4 and mean scores of combined quartiles. The mean score in Q1 (3.41) was significantly higher than the mean of combined quartiles (3.20). The mean score of Q4 (3.03) was significantly lower than the mean of combined quartiles. The quartile distribution for those who failed this section was 17.6 per-

Table 3. Clinical Class II amalgam section performance

ANOVA by Quartile

Quartile	Mean Score	p Value
Q1	3.60	<0.001
Q2	3.48	>0.05
Q3	3.25	>0.05
Q4	3.05	<0.001
All Quartiles	3.34	

Performance Distribution by Quartile

Quartile	Failed Amalgam (No.)	Failed Amalgam (%)	Passed Amalgam (No.)	Passed Amalgam (%)
Q1	16	12.2	115	87.8
Q2	24	18.3	107	81.7
Q3	40	30.5	91	69.5
Q4	49	37.4	82	62.6
All Quartiles	129	24.6	395	75.4

Table 4. Combined clinical Class II amalgam and periodontics section performance

ANOVA by Quartile

Quartile	Mean Score	p Value
Q1	3.61	<0.001
Q2	3.47	<0.05
Q3	3.23	<0.05
Q4	3.09	<0.001
All Quartiles	3.35	

Performance Distribution by Quartile

Quartile	Failed Amalgam & Perio (No.)	Failed Amalgam & Perio (%)	Passed Amalgam & Perio (No.)	Passed Amalgam & Perio (%)
Q1	17	13.0	114	87.0
Q2	18	13.7	113	86.3
Q3	44	33.6	87	66.4
Q4	52	39.7	79	60.3
All Quartiles	131	25.0	393	75.0

Table 5. Laboratory (manikin) with written prosthodontic exam performance

ANOVA by Quartile

Quartile	Mean Score	p Value
Q1	3.56	<0.001
Q2	3.41	0.054
Q3	3.27	0.010
Q4	3.22	<0.001
All Quartiles	3.36	

Performance Distribution by Quartile

Quartile	Failed Manikin & Pros Written (No.)	Failed Manikin & Pros Written (%)	Passed Manikin & Pros Written (No.)	Passed Manikin & Pros Written (%)
Q1	11	8.4	120	91.6
Q2	19	14.5	112	85.5
Q3	33	25.2	98	74.8
Q4	43	32.8	88	67.2
All Quartiles	106	20.2	418	79.8

cent from Q1, 29 percent from Q2, 38.2 percent from Q3, and 46.6 percent from Q4.

Discussion

A dental educator and a dental board examiner would hope that an independent licensure exam would detect those who cannot perform at a level of minimal competence, but would not "fail" those who are competent. In contrast with results reported by Ranney et al.,[11] the academic performance of UFCD graduates from 1996 to 2003 correlated with performance on the Florida state dental licensure examination. Results of this study indicated a significant relationship between quartile ranking, determined by graduating GPA, and overall performance on the Florida examination.

We recognize that dental licensure in Florida is determined by a composite performance score on the entire exam. Accordingly, the analysis of overall exam performance, as depicted in Table 1, represents the most meaningful relationships. However, for purposes of performance comparison, exam subsections were analyzed as independent sections.

For all six analyses, the least number of failures were in quartile 1. Of the seventy-five graduates who failed this exam during the previous eight years, only five students (6.7 percent) were in quartile 1. The highest percent of candidate failures (45.3 percent) were in quartile 4. For the overall exam performance, and four of the five exam sections, failures increased as academic performance decreased.

Table 6. Laboratory (manikin) exam without written prosthodontic exam performance

ANOVA by Quartile

Quartile	Mean Score	p Value
Q1	3.41	<0.001
Q2	3.26	0.054
Q3	3.09	0.010
Q4	3.03	<0.001
All Quartiles	3.20	

Performance Distribution by Quartile

Quartile	Failed Manikin (No.)	Failed Manikin (%)	Passed Manikin (No.)	Passed Manikin (%)
Q1	23	17.6	108	82.4
Q2	38	29.0	93	71.0
Q3	50	38.2	81	61.8
Q4	61	46.6	70	53.4
All Quartiles	172	32.8	352	67.2

Significant relationships were found between performance in dental school and performance on the overall exam for quartile 1 and quartile 4. This same significant relationship was also observed for all sections of the exam, with the exception of clinical periodontics. While a significant relationship was identified between quartile 1 academic performance and passing the clinical periodontics section, relationships for quartiles 2, 3, and 4 were not significant. We might hypothesize that this lack of correlation with GPAs could be due to lack of examiner calibration or lack of understanding by candidates regarding appropriate patient selection and evaluation criteria. Because the state board examiner standardization procedures and inter- and intra-examiner reliability data were not available, these questions could not be addressed.

Consideration was given to assessing the laboratory exam section with and without the prosthodontic written exam because the majority of graduates at UFCD pass the written prosthodontic exam. Analyzing these sections separately revealed expected results. Considering the manikin exam and written prosthodontic exam together resulted in a 20.2 percent section failure rate. Evaluating the manikin exam alone revealed a 32.8 percent failure rate. Consequently, the manikin portion could be interpreted as the most challenging portion, based on the highest percent of failures.

It is interesting to speculate that if the licensure exam had only consisted of the combined clinical Class II amalgam and periodontal procedures, the failure rate would have been 25 percent, based on this analysis. If one considered only the manikin procedures, the failure rate would have been even greater: 32.8 percent. The failure rates on the clinical portion and the manikin portion are higher than the overall exam failure rate of 14.3 percent. What raises the percent of passing candidates is the written prosthodontic exam worth 10 percent and the method of composite grading. Candidates can fail procedures and sections and still pass the overall exam with an overall performance score of 3.0 or greater.

The manikin portion of the laboratory section accounts for 50 percent of the entire licensure exam. Recognizing that nearly 33 percent of the UFCD graduates failed this section will provide the faculty with an opportunity to improve graduates' performance through additional instruction and mentored practice sessions.

Any attempt to explain differences between results reported by Ranney et al.[11] and this analysis

can only be speculative. Performance on the RESTOR portion of the NERB exam did not correlate with class rank, while performance on the clinical Class II amalgam and periodontal portions of the Florida exam did correlate with graduating GPA. Ranney et al. suggested that a lack of correlation was related to exam validity, based on variation in certain failure rates year to year, inconsistency between the results of the manikin portion and the patient restorative portion, and low interexamination reliability (year to year). According to Figure 1 in the report by Ranney et al., the failure rates for the nine-year analysis appeared to range from 15 percent to 60 percent. During the eight years of the Florida exam analysis, the UFCD "first attempt" failure rates ranged from 3 percent to 27 percent.

UFCD has a positive working relationship with the Florida State Board of Dentistry based on mutual respect, effective communication, and understanding and acknowledgment of the roles and responsibilities performed by each group. Through a contemporary predoctoral curriculum, the college seeks to graduate a competent dentist with the skills, knowledge, and values to begin independent practice. One of the primary missions of the board is to protect the health and well-being of the public, with one of those responsibilities being granting dental licensure. We believe that this relationship, coupled with an effective curriculum, which includes a rigorous senior mock board examination, may be key factors in finding a correlation between performance in dental school and performance on the state licensure exam.

Conclusion

Significant correlations were found between dental school performance for 1996-2003 UFCD graduates and performance on the Florida dental licensure examination. Significant relationships were noted between performance in dental school, based on quartile ranking according to graduating GPA, and overall performance on the Florida dental licensure exam, performance on the clinical Class II amalgam procedure, performance on the combined clinical Class II amalgam and periodontal procedures, and performance on the laboratory section, with and without the written prosthodontic exam. Significant ($p<0.001$) relationships were noted between exam performance and academic performance for quartiles 1 and 4 for these sections. For the periodontics section, a significant relationship was detected only for quartile 1.

An analysis of failures on exam sections resulted in discovery that the manikin portion was associated with the highest failure rate. These results will provide opportunities for UFCD to improve licensure exam performance of future graduates through additional instruction and practice on the manikin procedures.

As states and regions contemplate future exam models, a retrospective analysis of exam performance with academic performance might be helpful. While it is hoped that no student who has successfully completed a dental curriculum would fail a licensure exam, it does occur. Validity of a dental licensure examination might be supported, in part, by correlation between candidate academic performance during dental school and performance on the licensure examination.

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Reliability and Validity in Clinical Dental Licensure Exams

ADA Department of Testing Services
ADA Division of Education and Professional Affairs
May 8, 2017

Reliability

- Consistency of measurement (e.g., across administrations, time, differing test forms)
- The degree to which an examinee's score is free from random sources of measurement error
  - A completely unreliable test offers no advantage over randomly assigning test scores to students
- A pre-requisite for validity
  - If test scores are inconsistent, they cannot provide accurate and stable measurement

Validity

- "The degree to which evidence and theory support the interpretations of test scores for proposed uses of tests." (AERA, APA, NCME, 2014)
- Validity is the preeminent consideration in psychological measurement (psychometrics).
- Collecting, assessing, and maintaining validity evidence can be laborious, costly, and time-consuming.
- Reliability is subordinate to validity. It is possible to have a perfectly reliable assessment that is completely NOT valid.
  - For example, an archer aiming at a target hits a nearby tree every time, instead of the target.

What evidence does the ADA have?

Based on a careful review of peer-reviewed research literature and psychometric analyses described in publicly available technical reports and documents from clinical licensure agencies, findings suggest that there is little to no empirical evidence that current patient-based dental licensure examinations adequately discriminate between those who do and do not possess the clinical dental skills required to safely protect the public. The research supporting this assertion spans at least the last decade.

Peer-reviewed literature on validity

- The ADA has conducted and updated its literature searches over the past year, and made several requests for technical reports
- The literature searches have focused on the patient-based clinical board examinations largely as they exist today (articles from 2000 to the present day)
- The articles obtained were used to inform and articulate the ADA's position
- The ADA's position should NOT be construed as implying that there is no validity evidence for the patient-based clinical board examinations, nor should it be construed as implying that no empirical analyses are available that provide any support for patient-based clinical board examinations (e.g., the ADA did locate one article involving a clinical exam no longer administered in the US)
- Current patient-based dental clinical examinations do provide content validity evidence in their technical reports. However, from the ADA's perspective, this evidence is insufficient to support use of the examinations.

Peer-reviewed literature on validity

- What is noticeably lacking is a body of peer-reviewed evidence indicating that performance on current patient-based clinical examinations is related to dental outcomes of interest, or other reasonable measures of candidate performance
- The ADA's position is a summary position based on the weight of evidence available
- The ADA's position is consistent with the conclusions others within the literature have reached (the ADA and these authors have reviewed and scrutinized the same literature)
- The ADA continues to monitor the literature to inform its position

Peer-reviewed literature on validity (since 2000)

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Quotes from peer-reviewed literature

- "…basing licensing decisions on clinical licensure examination alone risks licensure decisions of low validity. Use of patients in examinations of questionable validity may be unethical because they may have been subjected to risk of irreversible damage without contribution to a valid decision-making process by the licensing authority." (Ranney, 2004)

- "…the patient-based component did not contribute to the overall examination validity or decision making and did not prevent candidates from obtaining certification." (Gerrow 2006)

Quotes from peer-reviewed literature

- "Clinical licensing exams are said to exist for the purpose of protecting the public. The best evidence to support their use would be data to show that the tests accurately identify those that would be dangerous to the public while not falsely identifying others i.e., that the tests have good predictive validity. Unfortunately, those data do not exist." (Ranney, 2006)

- "Patient-based initial licensure examinations have yet to demonstrate validity in terms of consistency of performance for candidates from one performance to the next." (Chambers, 2011)

Quotes from peer-reviewed literature

- "There is no peer-reviewed scientific evidence that correlates [Clinical Licensure Examination] outcomes with other validated assessments of clinical competence."

(Friedrichsen, 2016)

Peer-reviewed literature on validity

- Stewart CM, Bates Jr. RE, Smith G. Relationship Between Performance in Dental School and Performance on a Dental Licensure Examination: An Eight-year Study. J Dent Ed 2005 Aug;69(8):864-869.

  - Studies and/or analyses providing support are few and far between
  - Only peer-reviewed paper found with evidence of correlation between class rank and P/F on operative dentistry portion of an exam
  - No correlation for perio portion of exam
  - Limited to Florida State Board and UF graduates; no data presented for non-UF graduates

Technical Reports and Exam Guides

- From WREB: 2015 Technical Report; 2016 Candidate Guide
- From CRDTS: 2015 and 2016 Technical Reports; 2016 Candidate Guide
- From SRTA: 2016 Candidate Guide (Technical Report was unavailable)
- From ADEX: 2016 Candidate Guide (the Technical Report is not available online; ADEX declined ADA request for a copy.)
- The National Dental Examining Board of Canada's Technical Manual-Assessment of Clinical Skills-2015 is available at:

  https://www.ndeb-bned.ca/en/resources/technical-manuals

Technical Reports and Exam Guides

- Not peer-reviewed
- Not all technical reports are publicly available
- Available technical reports from clinical examination agencies
  - Significant variation in the amount and type of data available between agencies
  - Significant variation in data available from year-to-year
  - Inconsistent timeframe and administrations for data collection
  - The clinical testing agencies differ with respect to the amount and types of reliability and validity evidence they provide
  - Information is largely unavailable concerning how performance on current clinical examinations is related to dental outcomes of interest, or other reasonable measures of candidate performance

"You're pulling the rug out from under our feet!"

Nebraska Board Member, OSCE Q and A, April 2017

- What should dental boards do?
  - Insist clinical exam agencies provide peer-reviewed evidence of the validity of their exams, in regard to empirical relationships with existing third party measures of candidate clinical skills.
  - Ask clinical exam agencies how they intend to address the poor reliability of certain sections of patient-based exams.
  - Accept PGY-1, portfolio-style assessment, and specialty program completion for initial licensure.
  - Open a dialogue with dental education programs in their states, and learn what programs are doing to help ensure graduates are safe to practice.
  - Learn more about the ADA DLOSCE, and offer constructive input on DLOSCE development when asked.

DISCUSSION DRAFT

Purpose: Consider adding the term "patient-based" in the various regulations addressing the requirement of passing a clinical competency examination for dental licensure as shown in the text below.

REGULATIONS GOVERNING THE PRACTICE OF DENTISTRY

18VAC60-21-210. Qualifications for an unrestricted license.

A. Dental licensure by examination.

1. All applicants for licensure by examination shall have:

a. Successfully completed all parts of the National Board Dental Examination given by the Joint Commission on National Dental Examinations; and

b. Passed a **patient-based** dental clinical competency examination that is accepted by the board.

2. If a candidate has failed any section of a **patient-based** clinical competency examination three times, the candidate shall complete a minimum of 14 hours of additional clinical training in each section of the examination to be retested in order to be approved by the board to sit for the examination a fourth time.

3. Applicants who successfully completed a **patient-based** clinical competency examination five or more years prior to the date of receipt of their applications for licensure by this board may be required to retake an examination or take continuing education that meets the requirements of 18VAC60-21-250 unless they demonstrate that they have maintained clinical, ethical, and legal practice in another jurisdiction of the United States or in federal civil or military service for 48 of the past 60 months immediately prior to submission of an application for licensure.

B. Dental licensure by credentials. All applicants for licensure by credentials shall:

1. Have passed all parts of the National Board Dental Examination given by the Joint Commission on National Dental Examinations;

2. Have successfully completed a **patient-based** clinical competency examination acceptable to the board;

3. Hold a current, unrestricted license to practice dentistry in another jurisdiction of the United States and be certified to be in good standing by each jurisdiction in which a license is currently held or has been held; and

4. Have been in continuous clinical practice in another jurisdiction of the United States or in federal civil or military service for five out of the six years immediately preceding application for licensure pursuant to this section. Active patient care in another jurisdiction of the United States (i) as a volunteer in a public health clinic, (ii) as an intern, or (iii) in a residency program may be accepted by the board to satisfy this requirement. One year of clinical practice shall consist of a minimum of 600 hours of practice in a calendar year as attested by the applicant.

18VAC60-21-220. Inactive license.

A. Any dentist who holds a current, unrestricted license in Virginia may, upon a request on the renewal application and submission of the required fee, be issued an inactive license. With the exception of practice with a current restricted volunteer license as provided in § 54.1-2712.1 of the Code, the holder of an inactive license shall not be entitled to perform any act requiring a license to practice dentistry in Virginia.

B. An inactive license may be reactivated upon submission of the required application, which includes evidence of continuing competence and payment of the current renewal fee. To evaluate continuing competence the board shall consider (i) hours of continuing education that meet the requirements of 18VAC60-21-250; (ii) evidence of active practice in another state or in federal service; (iii) current specialty board certification; (iv) recent passage of a **patient-based** clinical competency examination that is accepted by the board; or (v) a refresher program offered by a program accredited by the Commission on Dental Accreditation of the American Dental Association.

1. Continuing education hours equal to the requirement for the number of years in which the license has been inactive, not to exceed a total of 45 hours, must be included with the application. Of the required hours, at least 15 must be earned in the most recent 12 months and the remainder within the 36 months immediately preceding the application for activation.

2. The board reserves the right to deny a request for reactivation to any licensee who has been determined to have committed an act in violation of § 54.1-2706 of the Code or who is unable to demonstrate continuing competence.

18VAC60-21-230. Qualifications for a restricted license.

A. Temporary permit for public health settings. A temporary permit shall be issued only for the purpose of allowing dental practice in a dental clinic operated by a state agency or a Virginia charitable organization as limited by § 54.1-2715 of the Code.

1. Passage of a clinical competency examination is not required, but the applicant cannot have failed a **patient-based** clinical competency examination accepted by the board.

2. A temporary permit will not be renewed unless the holder shows that extraordinary circumstances prevented the holder from taking the licensure examination during the term of the temporary permit.

Reen, Sandra (DHP)

From: Bayley Milton <bmilton@dentalboards.org>
Sent: Friday, May 19, 2017 9:25 AM
Subject: Forwarded Information from AADB Executive Director Richard Hetke
Attachments: Proposed New ADA Agency to Recognize Dental Specialties and Certifying Boards.pdf

AADB Members --

Many of you may already be aware that the ADA has been considering the formation of a new ADA agency relating to specialty recognition and specialty boards. Yesterday, a request for comments on this initiative was released by the ADA. Attached you shall find the request and supporting documents.

Richard Hetke
AADB

ADA American Dental Association®

Date: May 17, 2017

To: ADA Specialty Recognition Communities of Interest (attached list)

From: Dr. Charles H. Norman, III
Chair, Task Force on Specialty and Specialty Certifying Board Recognition

RE: Proposed New ADA Agency to Recognize Dental Specialties and Certifying Boards

The ADA Task Force on Specialty and Specialty Certifying Board Recognition is seeking input from the communities of interest on a proposal to establish the National Commission on Recognition of Dental Specialties and Certifying Boards.

The Task Force has identified guiding principles for the proposed specialty and specialty certifying board recognition process, concluding that the process should:

- be grounded in objective standards that protect the public, nurture the art and science of dentistry, and improve the quality of care;
- serve to reduce potential bias or conflicts of interest, or the perception of bias or conflicts of interest, in the decision-making process;
- include multiple steps, including provisions for appeal;
- be operationally similar to the Commission on Continuing Education Provider Recognition, Commission on Dental Accreditation and Joint Commission on National Dental Examinations;
- include representation from the ADA (general dentists and academics), each of the dental specialties recognized pursuant to the criteria contained in the *Requirements for Recognition of Dental Specialties*, and the public. In addition, opportunities for input from other communities of interest should be incorporated into the process;
- build on the expertise that has been developed by the Council on Dental Education and Licensure and be grounded in the existing *Requirements for the Recognition of Dental Specialties and National Certifying Boards for Dental Specialists*. The *Requirements for Recognition* were developed and are maintained by the Council; they are approved by the ADA House of Delegates; and
- be financially prudent and not place an undue financial burden on the ADA or the dental specialty organizations. The proposed Commission's annual operating budget would be subject to review by the Board of Trustees and approval by the ADA House of Delegates. It is proposed that 50% of the direct and indirect costs be covered by annual grants from the organzations representing the recognized specialties. The other 50% would be supported by the ADA.

Accordingly, the Task Force now seeks input on draft *Bylaws* (Appendix 1) and *Rules* (Appendix 2) for the proposed National Commission on Recognition of Dental Specialties and Certifying Boards from the communities of interest.

Written comments are due June 30. Please submit comments to Nicholas Salerno via email at salernon@ada.org or fax (312-440-2915).

The Task Force will carefully consider all comments received in early July and finalize its report to the Board of Trustees for consideration at the Board's August 13-15 meeting. Pending the outcome of its deliberations, the Board may transmit a report and resolutions to the 2017 ADA House of Delegates Meeting, October 20-23.

Thank you for your attention to this important matter. Task Force Members and I look forward to receiving your comments, suggestions and recommendations.

CC: Members, ADA Board of Trustees
Members, ADA Task Force on Dental Specialties and Certifying Boards Recognition

American Dental Association
Task Force on Specialty and Specialty Certifying Boards Recognition

Communities of Interest to Receive Proposed Commission Bylaws and Rules

1. American Association of Public Health Dentistry
2. American Association of Endodontists
3. American Academy of Oral and Maxillofacial Pathology
4. American Academy of Oral and Maxillofacial Radiology
5. American Association of Oral and Maxillofacial Surgeons
6. American Association of Orthodontists
7. American Academy of Pediatric Dentistry
8. American Academy of Periodontology
9. American College of Prosthodontists
10. American Board of Dental Public Health
11. American Board of Endodontics
12. American Board of Oral and Maxillofacial Pathology
13. American Board of Oral and Maxillofacial Radiology
14. American Board of Oral and Maxillofacial Surgery
15. American Board of Orthodontics
16. American Board of Pediatric Dentistry
17. American Board of Periodontology
18. American Board of Prosthodontics
19. American Board of Dental Specialties
20. American Board of Oral Implantology/Implant Dentistry
21. American Board of Oral Medicine
22. American Board of Orofacial Pain
23. American Dental Board of Anesthesiology
24. American Dental Education Association
25. American Academy of Implant Dentistry
26. Academy of Osseointegration
27. American Academy of Oral Medicine
28. American Society of Dentist Anesthesiologists
29. American Dental Society of Anesthesiology
30. American Academy of Orofacial Pain
31. American Association of Dental Boards
32. Academy of General Dentistry
33. American Academy of Restorative Dentistry
34. American Academy of Implant Prosthodontics
35. American Board of General Dentistry
36. American Academy of Dental Sleep Medicine
37. American Board of Dental Sleep Medicine
38. Academy of Operative Dentistry
39. American Board of Operative Dentistry
40. American Board of Craniofacial Deep Sleep Medicine
41. American Board of Craniofacial Pain
42. American Academy of Craniofacial Pain
43. American Academy of Cosmetic Dentistry
44. American Board of Cosmetic Dentistry

PROPOSED BYLAWS

Proposed additions are underlined and proposed deletions are ~~stricken~~

CHAPTER XV • COMMISSIONS

Section 10. NAME: The commissions of this Association shall be:
Commission on Dental Accreditation
Joint Commission on National Dental Examinations
Commission for Continuing Education Provider Recognition
National Commission on Recognition of Dental Specialties and Certifying Boards

Section 20. MEMBERS, SELECTIONS, NOMINATIONS AND ELECTIONS:

A. COMMISSION ON DENTAL ACCREDITATION. The number of members and the method of selection of the members of the Commission on Dental Accreditation shall be governed by the *Rules of the Commission on Dental Accreditation* and these *Bylaws*. Twelve (12) of the members of the Commission on Dental Accreditation shall be selected as follows:
   a. Four (4) members shall be selected from nominations open to all trustee districts from the active, life or retired members of this Association, no one of whom shall be a faculty member working for a school of dentistry more than one day per week or a member of a state board of dental examiners or jurisdictional dental licensing agency. These members shall be nominated by the Board of Trustees and elected by the House of Delegates.
   b. Four (4) members who are active, life or retired members of this Association shall be selected by the American Association of Dental Boards from the active membership of that body, no one of whom shall be a member of a faculty of a school of dentistry.
   c. Four (4) members who are active, life or retired members of this Association shall be selected by the American Dental Education Association from its active membership. These members shall hold positions of professorial rank in dental schools accredited by the Commission on Dental Accreditation and shall not be members of any state board of dental examiners or jurisdictional dental licensing agency.

B. JOINT COMMISSION ON NATIONAL DENTAL EXAMINATIONS. The Joint Commission on National Dental Examinations shall be composed of fifteen (15) members selected as follows:
   a. Three (3) members shall be nominated by the Board of Trustees from the active, life or retired members of this Association and additional nominations may be made by the House of Delegates but no one of such nominees shall be a member of a faculty of a school of dentistry or a member of a state board of dental examiners or jurisdictional dental licensing agency. The House of Delegates shall elect the three (3) members from those nominated by the Board of Trustees and the House of Delegates.
   b. Six (6) members who are active, life or retired members of this Association shall be selected by the American Association of Dental Boards from the active membership of that body, no one of whom shall be a member of a faculty of a dental school.
   c. Three (3) members who are active, life or retired members of this Association shall be selected by the American Dental Education Association from its active membership. These members shall hold positions of professorial rank in the dental schools accredited by this Association and shall not be members of any state board of dental examiners or jurisdictional dental licensing agency.
   d. One (1) member who is a dental hygienist shall be selected by the American Dental Hygienists' Association.
   e. One (1) member who is a public representative shall be selected by the Joint Commission on National Dental Examinations.
   f. One (1) member who is a dental student shall be selected annually by the American Student Dental Association.

C. COMMISSION FOR CONTINUING EDUCATION PROVIDER RECOGNITION. The Commission for Continuing Education Provider Recognition shall be composed of members selected as follows:

a. Four (4) members, at least two of whom shall be general dentists, shall be selected from nominations open to all trustee districts from the active, life or retired members of this Association. These members shall be nominated by the Board of Trustees and elected by the House of Delegates.

b. One (1) member who is an active, life or retired member of this Association (if eligible) shall be selected by the American Association of Dental Boards from the active membership of that body.

c. One (1) member who is an active, life or retired member of this Association (if eligible) shall be selected by the American Dental Education Association from its active membership.

d. One (1) member who is an active, life or retired member of this Association (if eligible) shall be selected by the American Society of Constituent Dental Executives from its active membership.

e. One (1) member who is an active, life or retired member of this Association shall be selected by each sponsoring organization of the ADA recognized dental specialties.*

D. NATIONAL COMMISSION ON RECOGNITION OF DENTAL SPECIALTIES AND CERTIFYING BOARDS. The National Commission on Recognition of Dental Specialties and Certifying Boards shall be composed of members selected as follows:

a. One (1) specialist from each dental specialty recognized by this Association or this Commission who is an active, life or retired member of this Association appointed by the sponsoring organization for that specialty.

b. A number of general dentists equal to the number of members appointed pursuant to subsection D.a. of this Section who are active, life or retired members of this Association appointed by the Board of Trustees.

c. A member of the general public appointed by the Commission

Section 30. REMOVAL FOR CAUSE: The Board of Trustees may remove a commission member for cause in accordance with procedures established by the Board of Trustees, which procedures shall provide for notice of the charges, including allegations of the conduct purported to constitute each violation, and a decision in writing which shall specify the findings of fact which substantiate any and all of the charges, and that prior to issuance of the decision of the Board of Trustees, no commission member shall be excused from attending any meeting of a commission unless there is an opportunity to be heard or compelling reasons exist which are specified in writing by the Board of Trustees.

Section 40. ELIGIBILITY:

A. All members of commissions who are dentists must be active, life or retired members in good standing of this Association except as otherwise provided in these *Bylaws*.

B. A member of the Joint Commission on National Dental Examinations, who was selected by the American Association of Dental Boards and who is no longer an active member of that Association, may continue as a member of the Commission for the balance of that member's term.

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* The Commission for Continuing Education Provider Recognition initially shall be composed of the incumbent members of the CERP Committee of the Council on Dental Education and Licensure that was retired by the 2014 House of Delegates and any new appointees to the CERP Committee of the Council on Dental Education and Licensure selected by the American Association of Dental Boards, American Dental Education Association, American Society of Constituent Dental Executives and/or a sponsoring organization of any ADA recognized dental specialty. To the extent that there exists an unfilled position on the Commission for Continuing Education Provider Recognition for an ADA appointee when the Commission is created, that position shall be treated as a vacancy and filled in accordance with the procedure set forth in CHAPTER XV. COMMISSIONS, Section 70 of these ADA *Bylaws*. These inaugural Commission members shall serve for terms that are equal in time to their unfinished terms on the retired CERP Committee. This footnote shall expire at adjournment sine die of the 2018 House of Delegates.

C. When a member of the Joint Commission on National Dental Examinations, who was selected by the American Dental Education Association, shall cease to be a member of the faculty of a member school of that Association, such membership on the Commission shall terminate, and the President of the American Dental Association shall declare the position vacant.

D. Any organizations that select members to serve on the Commission for Continuing Education Provider Recognition and offer continuing dental education courses shall be continuing education providers currently approved by that Commission.

E. No member of a commission may serve concurrently as a member of a council or another commission.

F. The Commissions of this Association shall elect their own chairs who shall be active, life or retired members of this Association.

Section 50. CONSULTANTS, ADVISERS AND STAFF:

A. CONSULTANTS AND ADVISERS. Each commission shall have the authority to nominate consultants and advisers in conformity with rules and regulations established by the Board of Trustees except as otherwise provided in these *Bylaws*. The Joint Commission on National Dental Examinations also shall select consultants to serve on the Commission's test construction committees. The Commission on Dental Accreditation shall have the power to appoint consultants to assist in developing requirements and guidelines for the conducting of accreditation evaluations, including site visitations, of predoctoral, advanced dental educational, and dental auxiliary educational programs. The Commission for Continuing Education Provider Recognition shall have the power to appoint consultants to assist in developing standards and procedures, conducting recognition reviews and conducting appeals. The National Commission on Recognition of Dental Specialties and Certifying Boards shall have the power to appoint consultants to assist in developing procedures, conducting recognition reviews and conducting appeals.

B. STAFF. The Executive Director shall employ the staff of Commissions, in the event they are employees, and shall select the titles for commission staff positions.

Section 60. TERM OF OFFICE: The term of office of members of the commissions shall be four (4) years except that (a) the term of office of members of the Commission on Dental Accreditation selected pursuant to the *Rules of the Commission on Dental Accreditation* shall be governed by those *Rules* and (b) the term of office of the dental student selected by the American Student Dental Association for membership on the Joint Commission on National Dental Examinations shall be one (1) year.
The tenure of a member of a commission shall be limited to one (1) term of four (4) years except that (a) the consecutive tenure of members of the Commission on Dental Accreditation selected pursuant to the *Rules of the Commission on Dental Accreditation* shall be governed by those *Rules* and (b) tenure in office of the dental student selected by the American Student Dental Association for membership on the Joint Commission on National Dental Examinations shall be one (1) term. A member shall not be eligible for appointment to another commission or council for a period of two (2) years after completing a previous commission appointment.

Section 70. VACANCY: In the event of a vacancy in the office of a commissioner, the following procedure shall be followed:

A. In the event the member of a commission, whose office is vacant, is or was a member of and was appointed or elected by this Association, the President of this Association shall appoint a member of this Association possessing the same qualifications as established by these *Bylaws* for the previous member, to fill such vacancy until a successor is elected by the next House of Delegates of this Association for the remainder of the unexpired term.

B. In the event the member of a commission whose office is vacant was selected by an organization other than this Association, such other organization shall appoint a successor possessing the same qualifications as those possessed by the previous member of the commission.

C. In the event such vacancy involves the chair of the commission, the President of this Association shall have the power to appoint an *ad interim* chair, except as otherwise provided in these *Bylaws*.

D. If the term of the vacated commission position has less than fifty percent (50%) of a full four-year term remaining at the time the successor member is appointed or elected, the successor member shall be eligible for election to a new, consecutive four-year term. If fifty percent (50%) or more of the vacated term remains to be served at the time of the appointment or election, the successor member shall not be eligible for another term.

Section 80. MEETINGS OF COMMISSIONS: Each commission shall hold at least one regular meeting annually, provided that funds are available in the budget for that purpose and unless otherwise directed by the Board of Trustees. Meetings may be held at the Headquarters Building, the Washington Office or from multiple remote locations through the use of a conference telephone or other communications equipment by means of which all members can communicate with each other. Such meetings shall be conducted in accordance with rules and procedures established by the Board of Trustees.

Section 90. QUORUM: A majority of the members of any commission shall constitute a quorum.

Section 100. PRIVILEGE OF THE FLOOR: Chairs and members of the commissions who are not members of the House of Delegates shall have the right to participate in the debate on their respective reports but shall not have the right to vote.

Section 110. ANNUAL REPORT AND BUDGET:

A. ANNUAL REPORT. Each commission shall submit, through the Executive Director, an annual report to the House of Delegates and a copy thereof to the Board of Trustees.

B. PROPOSED BUDGET. Each commission shall submit to the Board of Trustees, through the Executive Director, a proposed itemized budget for the ensuing fiscal year.

Section 120. POWER TO ADOPT RULES: Any commission of this Association shall have the power to adopt rules for such commission and amendments thereto, provided such rules and amendments thereto do not conflict with or limit the Constitution and Bylaws of this Association. Rules and amendments thereto, adopted by the Commission on Dental Accreditation, Joint Commission on National Dental Examinations and Commission for Continuing Education Provider Recognition ~~any commission of this Association~~, shall not be effective until submitted in writing to and approved by majority vote of the House of Delegates of this Association, except the Joint Commission on National Dental Examinations shall have such bylaws and amendments thereto as the House of Delegates of this Association may adopt by majority vote for the conduct of the purposes and management of the Joint Commission on National Dental Examinations. The Commission on Dental Accreditation shall have the authority to make corrections in punctuation, grammar, spelling, name changes, gender references, and similar editorial corrections to the Rules of the Commission on Dental Accreditation which do not alter its context or meaning without the need to submit such editorial corrections to the House of Delegates. Such corrections shall be made only by a unanimous vote of the Commission on Dental Accreditation members present and voting. The National Commission on Recognition of Dental Specialties and Certifying Boards shall have the power to adopt rules and amendments thereto pursuant to a two-thirds affirmative vote of the members present and voting.

Section 130. DUTIES:

A. COMMISSION ON DENTAL ACCREDITATION. The duties of the Commission on Dental Accreditation shall be to:
   a. Formulate and adopt requirements and guidelines for the accreditation of dental, advanced dental and allied dental educational programs.
   b. Accredit dental, advanced dental and allied dental educational programs.
   c. Provide a means for appeal from an adverse decision of the accrediting body of the Commission to a separate and distinct body of the Commission whose membership shall be totally different from that of the accrediting body of the Commission.
   d. Submit an annual report to the House of Delegates of this Association and interim reports, on request, and the Commission's annual budget to the Board of Trustees of the

Association.

e. Submit the Commission's articles of incorporation and rules and amendments thereto to this Association's House of Delegates for approval by majority vote.

B. JOINT COMMISSION ON NATIONAL DENTAL EXAMINATIONS. The duties of the Joint Commission on National Dental Examinations shall be to:

a. Provide and conduct written examinations, exclusive of clinical demonstrations for the purpose of assisting state boards of dental examiners in determining qualifications of dentists who seek license to practice in any state or other jurisdiction of the United States. Dental licensure is subject to the laws of the state or other jurisdiction of the United States and the conduct of all clinical examinations for licensure is reserved to the individual board of dental examiners.

b. Provide and conduct written examinations, exclusive of clinical demonstrations for the purpose of assisting state boards of dental examiners in determining qualifications of dental hygienists who seek license to practice in any state or other jurisdiction of the United States. Dental hygiene licensure is subject to the laws of the state or other jurisdiction of the United States and the conduct of all clinical examinations for licensure is reserved to the individual board of dental examiners.

c. Make rules and regulations for the conduct of examinations and the certification of successful candidates.

d. Serve as a resource of the dental profession in the development of written examinations.

C. COMMISSION FOR CONTINUING EDUCATION PROVIDER RECOGNITION. The duties of the Commission for Continuing Education Provider Recognition shall be to:

a. Formulate and adopt requirements, guidelines and procedures for the recognition of continuing dental education providers.

b. Approve providers of continuing dental education programs and activities.

c. Provide a means for continuing dental education providers to appeal adverse recognition decisions.

d. Submit an annual report to the House of Delegates of this Association and interim reports, on request, and the Commission's annual budget to the Board of Trustees of the Association.

e. Submit the Commission's rules and amendments thereto to this Association's House of Delegates for approval by majority vote either through or in cooperation with the Council on Dental Education and Licensure.

D. NATIONAL COMMISSION ON RECOGNITION OF DENTAL SPECIALTIES AND CERTIFYING BOARDS. The duties of the Commission on Recognition of Dental Specialties and Certifying Boards shall be to:

a. Formulate and adopt procedures for the recognition of specialties and specialty certifying boards in accord with the *Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialties*.

b. Grant or deny specialty recognition to specialty organizations and specialty certifying boards seeking for recognition in accord with the *Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialties*.

c. Provide a means for specialty organizations and specialty certifying boards to appeal an adverse recognition decision.

d. Submit an annual report to the House of Delegates of this Association and interim reports on request, and Commission's annual budget to the Board of Trustees of the Association.

PROPOSED RULES OF THE NATIONAL COMMISSION ON RECOGNITION OF DENTAL SPECIALTIES AND CERTIFYING BOARDS

Article I.. COMMISSION

Section 1. POWERS:

A. The Commission shall be vested with full power to conduct all business of the Commission subject to the laws of the State of Illinois, the *Constitution and Bylaws* of the American Dental Association and these *Rules.*

Section 2. COMMITTEES:

A. STANDING COMMITTEES: The Commission shall establish two (2) standing Review Committees whose membership will be both an equal number of general practitioners and dental specialists. The Review Committees shall be the Review Committee on Specialty Recognition and the Review Committee on Specialty Certifying Board Recognition.

B. SPECIAL COMMITTEES: In addition to the duties of the Commission, as set forth in Chapter XV. Sections 50A and 130 of the ADA *Bylaws*, the Commission may appoint special committees of the Commission for the purpose of delegating and performing duties not otherwise assigned by these *Rules.*

Section 3. MEETINGS:

A. SPECIAL MEETINGS: Special meetings of the Commission may be called at any time by the Chair of the Commission. The Chair shall call such meetings on his/her own initiative or at the request of a majority of the voting members of the Commission provided at least ten (10) days' notice is given to each member of the Commission in advance of the meeting. No business shall be considered except that provided in the call to the meeting unless approved by unanimous consent of the Commission present and voting.

Article II. OFFICERS AND STAFF

Section 1. OFFICERS: The officers of the Commission shall be a Chair and Vice-Chair and such other officers as the Commission may authorize. The Officers shall be elected by the members of the Commission.

Section 2. DUTIES: The duties of the officers are as follows:

A. CHAIR: The Chair shall preside at all meetings of the Commission.

B. VICE-CHAIR: If the Chair is unable to attend any given meeting of the Commission, the Vice-Chair shall preside at the meeting. If the Vice-chair is unable to preside the other members of the Commission, present and voting, shall elect by majority vote an acting chair for the purpose of presiding at that meeting only.

Section 3. DIRECTOR: The Director of the Commission shall keep the minutes of the meetings of the Commission, prepare an agenda for each meeting, see that all notices are duly given in accordance with the provisions of these *Rules* or as required by law, be the custodian of the Commission's records, and in general shall perform all duties incident to the office of Director.

Article III. APPEALS

Section 1. APPEALS: The appellate body of the Commission shall be the Appeal Board which shall have the authority to hear and decide appeals filed by sponsoring organizations or certifying boards from decisions denying or revoking recognition rendered by the Commission. Such appeals shall be heard pursuant to procedures established by the Appeal Board.

Section 2. COMPOSITION: The Appeal Board shall consists of one (1) representative selected by each of the organizations represented on the Commission who has previously served on the Commission.* When an appeal is initiated, the Commission's Director selects three (3) individuals from the available Appeal Board Members to serve as a hearing panel and hear the appeal.

Section 3. TERM OF OFFICE: The term of office of members on the Appeal Board shall be one four (4) year term.

Section 4. MEETINGS: The Appeal Board shall meet at the call of the Director of the Commission, provided at least ten (10) days' notice is given to each member of the Appeal Board in advance of the meeting. Such meetings shall be called by the Director only when an appeal to the appellate body has been duly filed by a sponsoring organization or certifying board.

Section 5. QUORUM: A majority of the voting members of the Appeal Board shall constitute a quorum.

Section 6. VACANCIES:

A. In the event of a vacancy in the membership of the Appeal Board, the Chair of the Commission shall appoint a member of the same organization to fill such vacancy until a successor is selected by the respective representative organization.

B. If the term of the vacated position has less than fifty percent (50%) of a full four-year term remaining at the time the successor member is appointed, the successor member shall be eligible for a new, consecutive four-year term. If fifty percent (50%) of more of the vacated term remains to be served at the time of the appointment, the successor member shall not be eligible for another term.

Article IV. SPECIALTY RECOGNITION PROGRAM

Section 1. RECOGNITION CRITERIA: The duty of maintaining the *Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialties* is vested with the ADA Council on Dental Education and Licensure and the ADA House of Delegates.

Section 2. RECOGNITION PROCEDURES: The Commission, shall establish and publish specific application and evaluation procedures for the recognition of dental specialties and national certifying boards for dental specialists.

Section 3. PROCEDURES FOR EVALUATING DENTAL SPECIALTIES AND NATIONAL CERTIFYING BOARDS FOR DENTAL SPECIALISTS FOR RECOGNITION: Organizations applying for recognition shall be evaluated for compliance with the *Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialties* by the Commission on the basis of the information and data provided in the application and comments from the communities of interest.

*The inaugural Appeal Board will be composed of four (4) general dentists appointed by the ADA Board of Trustees and one (1) representative appointed by each of the dental specialty organizations represented on the Commission. This footnote shall expire at adjournment sine die of the 2021 House of Delegates.

Reen, Sandra (DHP)

From: Bayley Milton <bmilton@dentalboards.org>
Sent: Friday, May 19, 2017 9:25 AM
Subject: Forwarded Information from AADB Executive Director Richard Hetke
Attachments: Proposed New ADA Agency to Recognize Dental Specialties and Certifying Boards.pdf

AADB Members ---

Many of you may already be aware that the ADA has been considering the formation of a new ADA agency relating to specialty recognition and specialty boards. Yesterday, a request for comments on this initiative was released by the ADA. Attached you shall find the request and supporting documents.

Richard Hetke
AADB

ADA American Dental Association®

Date: May 17, 2017

To: ADA Specialty Recognition Communities of Interest (attached list)

From: Dr. Charles H. Norman, III
Chair, Task Force on Specialty and Specialty Certifying Board Recognition

RE: Proposed New ADA Agency to Recognize Dental Specialties and Certifying Boards

The ADA Task Force on Specialty and Specialty Certifying Board Recognition is seeking input from the communities of interest on a proposal to establish the National Commission on Recognition of Dental Specialties and Certifying Boards.

The Task Force has identified guiding principles for the proposed specialty and specialty certifying board recognition process, concluding that the process should:

- be grounded in objective standards that protect the public, nurture the art and science of dentistry, and improve the quality of care;
- serve to reduce potential bias or conflicts of interest, or the perception of bias or conflicts of interest, in the decision-making process;
- include multiple steps, including provisions for appeal;
- be operationally similar to the Commission on Continuing Education Provider Recognition, Commission on Dental Accreditation and Joint Commission on National Dental Examinations;
- include representation from the ADA (general dentists and academics), each of the dental specialties recognized pursuant to the criteria contained in the *Requirements for Recognition of Dental Specialties*, and the public. In addition, opportunities for input from other communities of interest should be incorporated into the process;
- build on the expertise that has been developed by the Council on Dental Education and Licensure and be grounded in the existing *Requirements for the Recognition of Dental Specialties and National Certifying Boards for Dental Specialists*. The *Requirements for Recognition* were developed and are maintained by the Council; they are approved by the ADA House of Delegates; and
- be financially prudent and not place an undue financial burden on the ADA or the dental specialty organizations. The proposed Commission's annual operating budget would be subject to review by the Board of Trustees and approval by the ADA House of Delegates. It is proposed that 50% of the direct and indirect costs be covered by annual grants from the organzations representing the recognized specialties. The other 50% would be supported by the ADA.

Accordingly, the Task Force now seeks input on draft *Bylaws* (Appendix 1) and *Rules* (Appendix 2) for the proposed National Commission on Recognition of Dental Specialties and Certifying Boards from the communities of interest.

Written comments are due June 30. Please submit comments to Nicholas Salerno via email at salernon@ada.org or fax (312-440-2915).

The Task Force will carefully consider all comments received in early July and finalize its report to the Board of Trustees for consideration at the Board's August 13-15 meeting. Pending the outcome of its deliberations, the Board may transmit a report and resolutions to the 2017 ADA House of Delegates Meeting, October 20-23.

Thank you for your attention to this important matter. Task Force Members and I look forward to receiving your comments, suggestions and recommendations.

CC: Members, ADA Board of Trustees
Members, ADA Task Force on Dental Specialties and Certifying Boards Recognition

American Dental Association
Task Force on Specialty and Specialty Certifying Boards Recognition

Communities of Interest to Receive Proposed Commission Bylaws and Rules

1. American Association of Public Health Dentistry
2. American Association of Endodontists
3. American Academy of Oral and Maxillofacial Pathology
4. American Academy of Oral and Maxillofacial Radiology
5. American Association of Oral and Maxillofacial Surgeons
6. American Association of Orthodontists
7. American Academy of Pediatric Dentistry
8. American Academy of Periodontology
9. American College of Prosthodontists
10. American Board of Dental Public Health
11. American Board of Endodontics
12. American Board of Oral and Maxillofacial Pathology
13. American Board of Oral and Maxillofacial Radiology
14. American Board of Oral and Maxillofacial Surgery
15. American Board of Orthodontics
16. American Board of Pediatric Dentistry
17. American Board of Periodontology
18. American Board of Prosthodontics
19. American Board of Dental Specialties
20. American Board of Oral Implantology/Implant Dentistry
21. American Board of Oral Medicine
22. American Board of Orofacial Pain
23. American Dental Board of Anesthesiology
24. American Dental Education Association
25. American Academy of Implant Dentistry
26. Academy of Osseointegration
27. American Academy of Oral Medicine
28. American Society of Dentist Anesthesiologists
29. American Dental Society of Anesthesiology
30. American Academy of Orofacial Pain
31. American Association of Dental Boards
32. Academy of General Dentistry
33. American Academy of Restorative Dentistry
34. American Academy of Implant Prosthodontics
35. American Board of General Dentistry
36. American Academy of Dental Sleep Medicine
37. American Board of Dental Sleep Medicine
38. Academy of Operative Dentistry
39. American Board of Operative Dentistry
40. American Board of Craniofacial Deep Sleep Medicine
41. American Board of Craniofacial Pain
42. American Academy of Craniofacial Pain
43. American Academy of Cosmetic Dentistry
44. American Board of Cosmetic Dentistry

PROPOSED BYLAWS

Proposed additions are underlined and proposed deletions are ~~stricken~~

CHAPTER XV • COMMISSIONS

Section 10. NAME: The commissions of this Association shall be:
Commission on Dental Accreditation
Joint Commission on National Dental Examinations
Commission for Continuing Education Provider Recognition
National Commission on Recognition of Dental Specialties and Certifying Boards

Section 20. MEMBERS, SELECTIONS, NOMINATIONS AND ELECTIONS:

A. COMMISSION ON DENTAL ACCREDITATION. The number of members and the method of selection of the members of the Commission on Dental Accreditation shall be governed by the *Rules of the Commission on Dental Accreditation* and these *Bylaws*. Twelve (12) of the members of the Commission on Dental Accreditation shall be selected as follows:
   a. Four (4) members shall be selected from nominations open to all trustee districts from the active, life or retired members of this Association, no one of whom shall be a faculty member working for a school of dentistry more than one day per week or a member of a state board of dental examiners or jurisdictional dental licensing agency. These members shall be nominated by the Board of Trustees and elected by the House of Delegates.
   b. Four (4) members who are active, life or retired members of this Association shall be selected by the American Association of Dental Boards from the active membership of that body, no one of whom shall be a member of a faculty of a school of dentistry.
   c. Four (4) members who are active, life or retired members of this Association shall be selected by the American Dental Education Association from its active membership. These members shall hold positions of professorial rank in dental schools accredited by the Commission on Dental Accreditation and shall not be members of any state board of dental examiners or jurisdictional dental licensing agency.

B. JOINT COMMISSION ON NATIONAL DENTAL EXAMINATIONS. The Joint Commission on National Dental Examinations shall be composed of fifteen (15) members selected as follows:
   a. Three (3) members shall be nominated by the Board of Trustees from the active, life or retired members of this Association and additional nominations may be made by the House of Delegates but no one of such nominees shall be a member of a faculty of a school of dentistry or a member of a state board of dental examiners or jurisdictional dental licensing agency. The House of Delegates shall elect the three (3) members from those nominated by the Board of Trustees and the House of Delegates.
   b. Six (6) members who are active, life or retired members of this Association shall be selected by the American Association of Dental Boards from the active membership of that body, no one of whom shall be a member of a faculty of a dental school.
   c. Three (3) members who are active, life or retired members of this Association shall be selected by the American Dental Education Association from its active membership. These members shall hold positions of professorial rank in the dental schools accredited by this Association and shall not be members of any state board of dental examiners or jurisdictional dental licensing agency.
   d. One (1) member who is a dental hygienist shall be selected by the American Dental Hygienists' Association.
   e. One (1) member who is a public representative shall be selected by the Joint Commission on National Dental Examinations.
   f. One (1) member who is a dental student shall be selected annually by the American Student Dental Association.

C. COMMISSION FOR CONTINUING EDUCATION PROVIDER RECOGNITION. The Commission for Continuing Education Provider Recognition shall be composed of members selected as follows:

a. Four (4) members, at least two of whom shall be general dentists, shall be selected from nominations open to all trustee districts from the active, life or retired members of this Association. These members shall be nominated by the Board of Trustees and elected by the House of Delegates.

b. One (1) member who is an active, life or retired member of this Association (if eligible) shall be selected by the American Association of Dental Boards from the active membership of that body.

c. One (1) member who is an active, life or retired member of this Association (if eligible) shall be selected by the American Dental Education Association from its active membership.

d. One (1) member who is an active, life or retired member of this Association (if eligible) shall be selected by the American Society of Constituent Dental Executives from its active membership.

e. One (1) member who is an active, life or retired member of this Association shall be selected by each sponsoring organization of the ADA recognized dental specialties.*

D. NATIONAL COMMISSION ON RECOGNITION OF DENTAL SPECIALTIES AND CERTIFYING BOARDS. The National Commission on Recognition of Dental Specialties and Certifying Boards shall be composed of members selected as follows:

a. One (1) specialist from each dental specialty recognized by this Association or this Commission who is an active, life or retired member of this Association appointed by the sponsoring organization for that specialty.

b. A number of general dentists equal to the number of members appointed pursuant to subsection D.a. of this Section who are active, life or retired members of this Association appointed by the Board of Trustees.

c. A member of the general public appointed by the Commission

Section 30. REMOVAL FOR CAUSE: The Board of Trustees may remove a commission member for cause in accordance with procedures established by the Board of Trustees, which procedures shall provide for notice of the charges, including allegations of the conduct purported to constitute each violation, and a decision in writing which shall specify the findings of fact which substantiate any and all of the charges, and that prior to issuance of the decision of the Board of Trustees, no commission member shall be excused from attending any meeting of a commission unless there is an opportunity to be heard or compelling reasons exist which are specified in writing by the Board of Trustees.

Section 40. ELIGIBILITY:

A. All members of commissions who are dentists must be active, life or retired members in good standing of this Association except as otherwise provided in these *Bylaws*.

B. A member of the Joint Commission on National Dental Examinations, who was selected by the American Association of Dental Boards and who is no longer an active member of that Association, may continue as a member of the Commission for the balance of that member's term.

* The Commission for Continuing Education Provider Recognition initially shall be composed of the incumbent members of the CERP Committee of the Council on Dental Education and Licensure that was retired by the 2014 House of Delegates and any new appointees to the CERP Committee of the Council on Dental Education and Licensure selected by the American Association of Dental Boards, American Dental Education Association, American Society of Constituent Dental Executives and/or a sponsoring organization of any ADA recognized dental specialty. To the extent that there exists an unfilled position on the Commission for Continuing Education Provider Recognition for an ADA appointee when the Commission is created, that position shall be treated as a vacancy and filled in accordance with the procedure set forth in CHAPTER XV. COMMISSIONS, Section 70 of these ADA *Bylaws*. These inaugural Commission members shall serve for terms that are equal in time to their unfinished terms on the retired CERP Committee. This footnote shall expire at adjournment sine die of the 2018 House of Delegates.

C. When a member of the Joint Commission on National Dental Examinations, who was selected by the American Dental Education Association, shall cease to be a member of the faculty of a member school of that Association, such membership on the Commission shall terminate, and the President of the American Dental Association shall declare the position vacant.

D. Any organizations that select members to serve on the Commission for Continuing Education Provider Recognition and offer continuing dental education courses shall be continuing education providers currently approved by that Commission.

E. No member of a commission may serve concurrently as a member of a council or another commission.

F. The Commissions of this Association shall elect their own chairs who shall be active, life or retired members of this Association.

Section 50. CONSULTANTS, ADVISERS AND STAFF:

A. CONSULTANTS AND ADVISERS. Each commission shall have the authority to nominate consultants and advisers in conformity with rules and regulations established by the Board of Trustees except as otherwise provided in these *Bylaws*. The Joint Commission on National Dental Examinations also shall select consultants to serve on the Commission's test construction committees. The Commission on Dental Accreditation shall have the power to appoint consultants to assist in developing requirements and guidelines for the conducting of accreditation evaluations, including site visitations, of predoctoral, advanced dental educational, and dental auxiliary educational programs. The Commission for Continuing Education Provider Recognition shall have the power to appoint consultants to assist in developing standards and procedures, conducting recognition reviews and conducting appeals. The National Commission on Recognition of Dental Specialties and Certifying Boards shall have the power to appoint consultants to assist in developing procedures, conducting recognition reviews and conducting appeals.

B. STAFF. The Executive Director shall employ the staff of Commissions, in the event they are employees, and shall select the titles for commission staff positions.

Section 60. TERM OF OFFICE: The term of office of members of the commissions shall be four (4) years except that (a) the term of office of members of the Commission on Dental Accreditation selected pursuant to the *Rules of the Commission on Dental Accreditation* shall be governed by those *Rules* and (b) the term of office of the dental student selected by the American Student Dental Association for membership on the Joint Commission on National Dental Examinations shall be one (1) year.
The tenure of a member of a commission shall be limited to one (1) term of four (4) years except that (a) the consecutive tenure of members of the Commission on Dental Accreditation selected pursuant to the *Rules of the Commission on Dental Accreditation* shall be governed by those *Rules* and (b) tenure in office of the dental student selected by the American Student Dental Association for membership on the Joint Commission on National Dental Examinations shall be one (1) term. A member shall not be eligible for appointment to another commission or council for a period of two (2) years after completing a previous commission appointment.

Section 70. VACANCY: In the event of a vacancy in the office of a commissioner, the following procedure shall be followed:

A. In the event the member of a commission, whose office is vacant, is or was a member of and was appointed or elected by this Association, the President of this Association shall appoint a member of this Association possessing the same qualifications as established by these *Bylaws* for the previous member, to fill such vacancy until a successor is elected by the next House of Delegates of this Association for the remainder of the unexpired term.

B. In the event the member of a commission whose office is vacant was selected by an organization other than this Association, such other organization shall appoint a successor possessing the same qualifications as those possessed by the previous member of the commission.

C. In the event such vacancy involves the chair of the commission, the President of this Association shall have the power to appoint an *ad interim* chair, except as otherwise provided in these *Bylaws*.

D. If the term of the vacated commission position has less than fifty percent (50%) of a full four-year term remaining at the time the successor member is appointed or elected, the successor member shall be eligible for election to a new, consecutive four-year term. If fifty percent (50%) or more of the vacated term remains to be served at the time of the appointment or election, the successor member shall not be eligible for another term.

Section 80. MEETINGS OF COMMISSIONS: Each commission shall hold at least one regular meeting annually, provided that funds are available in the budget for that purpose and unless otherwise directed by the Board of Trustees. Meetings may be held at the Headquarters Building, the Washington Office or from multiple remote locations through the use of a conference telephone or other communications equipment by means of which all members can communicate with each other. Such meetings shall be conducted in accordance with rules and procedures established by the Board of Trustees.

Section 90. QUORUM: A majority of the members of any commission shall constitute a quorum.

Section 100. PRIVILEGE OF THE FLOOR: Chairs and members of the commissions who are not members of the House of Delegates shall have the right to participate in the debate on their respective reports but shall not have the right to vote.

Section 110. ANNUAL REPORT AND BUDGET:

A. ANNUAL REPORT. Each commission shall submit, through the Executive Director, an annual report to the House of Delegates and a copy thereof to the Board of Trustees.

B. PROPOSED BUDGET. Each commission shall submit to the Board of Trustees, through the Executive Director, a proposed itemized budget for the ensuing fiscal year.

Section 120. POWER TO ADOPT RULES: Any commission of this Association shall have the power to adopt rules for such commission and amendments thereto, provided such rules and amendments thereto do not conflict with or limit the Constitution and Bylaws of this Association. Rules and amendments thereto, adopted by the Commission on Dental Accreditation, Joint Commission on National Dental Examinations and Commission for Continuing Education Provider Recognition ~~any commission of this Association~~, shall not be effective until submitted in writing to and approved by majority vote of the House of Delegates of this Association, except the Joint Commission on National Dental Examinations shall have such bylaws and amendments thereto as the House of Delegates of this Association may adopt by majority vote for the conduct of the purposes and management of the Joint Commission on National Dental Examinations. The Commission on Dental Accreditation shall have the authority to make corrections in punctuation, grammar, spelling, name changes, gender references, and similar editorial corrections to the Rules of the Commission on Dental Accreditation which do not alter its context or meaning without the need to submit such editorial corrections to the House of Delegates. Such corrections shall be made only by a unanimous vote of the Commission on Dental Accreditation members present and voting. The National Commission on Recognition of Dental Specialties and Certifying Boards shall have the power to adopt rules and amendments thereto pursuant to a two-thirds affirmative vote of the members present and voting.

Section 130. DUTIES:

A. COMMISSION ON DENTAL ACCREDITATION. The duties of the Commission on Dental Accreditation shall be to:
   a. Formulate and adopt requirements and guidelines for the accreditation of dental, advanced dental and allied dental educational programs.
   b. Accredit dental, advanced dental and allied dental educational programs.
   c. Provide a means for appeal from an adverse decision of the accrediting body of the Commission to a separate and distinct body of the Commission whose membership shall be totally different from that of the accrediting body of the Commission.
   d. Submit an annual report to the House of Delegates of this Association and interim reports, on request, and the Commission's annual budget to the Board of Trustees of the

Association.

e. Submit the Commission's articles of incorporation and rules and amendments thereto to this Association's House of Delegates for approval by majority vote.

B. JOINT COMMISSION ON NATIONAL DENTAL EXAMINATIONS. The duties of the Joint Commission on National Dental Examinations shall be to:

a. Provide and conduct written examinations, exclusive of clinical demonstrations for the purpose of assisting state boards of dental examiners in determining qualifications of dentists who seek license to practice in any state or other jurisdiction of the United States. Dental licensure is subject to the laws of the state or other jurisdiction of the United States and the conduct of all clinical examinations for licensure is reserved to the individual board of dental examiners.

b. Provide and conduct written examinations, exclusive of clinical demonstrations for the purpose of assisting state boards of dental examiners in determining qualifications of dental hygienists who seek license to practice in any state or other jurisdiction of the United States. Dental hygiene licensure is subject to the laws of the state or other jurisdiction of the United States and the conduct of all clinical examinations for licensure is reserved to the individual board of dental examiners.

c. Make rules and regulations for the conduct of examinations and the certification of successful candidates.

d. Serve as a resource of the dental profession in the development of written examinations.

C. COMMISSION FOR CONTINUING EDUCATION PROVIDER RECOGNITION. The duties of the Commission for Continuing Education Provider Recognition shall be to:

a. Formulate and adopt requirements, guidelines and procedures for the recognition of continuing dental education providers.

b. Approve providers of continuing dental education programs and activities.

c. Provide a means for continuing dental education providers to appeal adverse recognition decisions.

d. Submit an annual report to the House of Delegates of this Association and interim reports, on request, and the Commission's annual budget to the Board of Trustees of the Association.

e. Submit the Commission's rules and amendments thereto to this Association's House of Delegates for approval by majority vote either through or in cooperation with the Council on Dental Education and Licensure.

D. NATIONAL COMMISSION ON RECOGNITION OF DENTAL SPECIALTIES AND CERTIFYING BOARDS. The duties of the Commission on Recognition of Dental Specialties and Certifying Boards shall be to:

a. Formulate and adopt procedures for the recognition of specialties and specialty certifying boards in accord with the *Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialties*.

b. Grant or deny specialty recognition to specialty organizations and specialty certifying boards seeking for recognition in accord with the *Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialties*.

c. Provide a means for specialty organizations and specialty certifying boards to appeal an adverse recognition decision.

d. Submit an annual report to the House of Delegates of this Association and interim reports on request, and Commission's annual budget to the Board of Trustees of the Association.

PROPOSED RULES OF THE NATIONAL COMMISSION ON RECOGNITION OF DENTAL SPECIALTIES AND CERTIFYING BOARDS

Article I. COMMISSION

Section 1. POWERS:

A. The Commission shall be vested with full power to conduct all business of the Commission subject to the laws of the State of Illinois, the *Constitution and Bylaws* of the American Dental Association and these *Rules*.

Section 2. COMMITTEES:

A. STANDING COMMITTEES: The Commission shall establish two (2) standing Review Committees whose membership will be both an equal number of general practitioners and dental specialists. The Review Committees shall be the Review Committee on Specialty Recognition and the Review Committee on Specialty Certifying Board Recognition.

B. SPECIAL COMMITTEES: In addition to the duties of the Commission, as set forth in Chapter XV. Sections 50A and 130 of the ADA *Bylaws*, the Commission may appoint special committees of the Commission for the purpose of delegating and performing duties not otherwise assigned by these *Rules*.

Section 3. MEETINGS:

A. SPECIAL MEETINGS: Special meetings of the Commission may be called at any time by the Chair of the Commission. The Chair shall call such meetings on his/her own initiative or at the request of a majority of the voting members of the Commission provided at least ten (10) days' notice is given to each member of the Commission in advance of the meeting. No business shall be considered except that provided in the call to the meeting unless approved by unanimous consent of the Commission present and voting.

Article II. OFFICERS AND STAFF

Section 1. OFFICERS: The officers of the Commission shall be a Chair and Vice-Chair and such other officers as the Commission may authorize. The Officers shall be elected by the members of the Commission.

Section 2. DUTIES: The duties of the officers are as follows:

A. CHAIR: The Chair shall preside at all meetings of the Commission.

B. VICE-CHAIR: If the Chair is unable to attend any given meeting of the Commission, the Vice-Chair shall preside at the meeting. If the Vice-chair is unable to preside the other members of the Commission, present and voting, shall elect by majority vote an acting chair for the purpose of presiding at that meeting only.

Section 3. DIRECTOR: The Director of the Commission shall keep the minutes of the meetings of the Commission, prepare an agenda for each meeting, see that all notices are duly given in accordance with the provisions of these *Rules* or as required by law, be the custodian of the Commission's records, and in general shall perform all duties incident to the office of Director.

Article III. APPEALS

Section 1. APPEALS: The appellate body of the Commission shall be the Appeal Board which shall have the authority to hear and decide appeals filed by sponsoring organizations or certifying boards from decisions denying or revoking recognition rendered by the Commission. Such appeals shall be heard pursuant to procedures established by the Appeal Board.

Section 2. COMPOSITION: The Appeal Board shall consists of one (1) representative selected by each of the organizations represented on the Commission who has previously served on the Commission.* When an appeal is initiated, the Commission's Director selects three (3) individuals from the available Appeal Board Members to serve as a hearing panel and hear the appeal.

Section 3. TERM OF OFFICE: The term of office of members on the Appeal Board shall be one four (4) year term.

Section 4. MEETINGS: The Appeal Board shall meet at the call of the Director of the Commission, provided at least ten (10) days' notice is given to each member of the Appeal Board in advance of the meeting. Such meetings shall be called by the Director only when an appeal to the appellate body has been duly filed by a sponsoring organization or certifying board.

Section 5. QUORUM: A majority of the voting members of the Appeal Board shall constitute a quorum.

Section 6. VACANCIES:

A. In the event of a vacancy in the membership of the Appeal Board, the Chair of the Commission shall appoint a member of the same organization to fill such vacancy until a successor is selected by the respective representative organization.

B. If the term of the vacated position has less than fifty percent (50%) of a full four-year term remaining at the time the successor member is appointed, the successor member shall be eligible for a new, consecutive four-year term. If fifty percent (50%) of more of the vacated term remains to be served at the time of the appointment, the successor member shall not be eligible for another term.

Article IV. SPECIALTY RECOGNITION PROGRAM

Section 1. RECOGNITION CRITERIA: The duty of maintaining the *Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialties* is vested with the ADA Council on Dental Education and Licensure and the ADA House of Delegates.

Section 2. RECOGNITION PROCEDURES: The Commission, shall establish and publish specific application and evaluation procedures for the recognition of dental specialties and national certifying boards for dental specialists.

Section 3. PROCEDURES FOR EVALUATING DENTAL SPECIALTIES AND NATIONAL CERTIFYING BOARDS FOR DENTAL SPECIALISTS FOR RECOGNITION: Organizations applying for recognition shall be evaluated for compliance with the *Requirements for Recognition of Dental Specialties and National Certifying Boards for Dental Specialties* by the Commission on the basis of the information and data provided in the application and comments from the communities of interest.

*The inaugural Appeal Board will be composed of four (4) general dentists appointed by the ADA Board of Trustees and one (1) representative appointed by each of the dental specialty organizations represented on the Commission. This footnote shall expire at adjournment sine die of the 2021 House of Delegates.

BOARD COUNSEL

Expert admissibility standards to consider:

Traditional Virginia Standard:

To qualify to serve as an expert witness, an individual:

> must possess sufficient knowledge, skill, or experience regarding the subject matter of the testimony to assist the trier of fact in the search for the truth. Generally, a witness possesses sufficient expertise when, through experience, study or observation the witness acquires knowledge of a subject beyond that of persons of common intelligence and ordinary experience.

Virginia Medical Malpractice Standard:

To qualify to serve as an expert witness, an individual:

> [a]ny health care provider who is licensed to practice in Virginia shall be presumed to know the statewide standard of care in the specialty or field of practice in which he is qualified and certified....A witness shall be qualified to testify as an expert on the standard of care if he demonstrates expert knowledge of the standards of the defendant's specialty and of what conduct conforms or fails to conform to those standards and if he has had active clinical practice in either the defendant's specialty or a related field of medicine within one year of the date of the alleged act or omission forming the basis of the action.

Disciplinary Board Report for June 9, 2017

Today's report reviews the 2017 calendar year case activity then addresses the Board's disciplinary case actions for the third quarter of fiscal year 2017 which includes the dates of January 1, 2017 through March 31, 2017.

Calendar Year 2017

The table below includes all cases that have received Board action since January 1, 2017 through May 19, 2017.

Calendar 2017	Cases Received	Cases Closed No/Violation	Cases Closed W/Violation	Total Cases Closed
January	36	12	7	19
February	18	12	5	17
March	37	50	8	58
April	20	7	5	12
May 19th	15	28	1	29
Totals	**126**	**109**	**26**	**135**

Q3 FY 2017

For the third quarter of 2017, the Board received a total of 62 patient care cases. The Board closed a total of 69 patient care cases for a 111% clearance rate, which is down from 171% in Q2 of 2017. The current pending caseload older than 250 days is 32%, which is up from 28% in Q2 of 2017. The Board's goal is 20%. In Q3 of 2017, 79 % of the patient care cases were closed within 250 days, whereas 84% of the patient care cases were closed within 250 days in Q2 of 2017. The Board's goal is 90% of patient care cases closed within 250 days.[1]

License Suspensions

Between February 24, 2017 and May 22, 2017, the Board summarily rescinded the stay of one dental license.

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[1] The Agency's Key Performance Measures.

- DHP's goal is to maintain a 100% clearance rate of allegations of misconduct through the end of FY 2017.
- The goal is to maintain the percentage of open patient care cases older than 250 business days at no more than 20% through the end of FY 2017.
- The goal is to resolve 90% of patient care cases within 250 business days through the end of FY 2017.

Committee Meeting Days

Board staff discussed with all of the informal conference committees whether they were interested in keeping hearing dates on Fridays. Only one committee was interested in changing conference days to Mondays.

Board Member concerns

Board staff would like to know if the Board members have any concerns about the way discipline matters are being handled? How is the probable cause review process working? Is there anything that could be done differently? Any concerns about informal conferences?

Virginia Department of Health Professions

Patient Care Disciplinary Case Processing Times: Quarterly Performance Measurement, Q3 2013 - Q3 2017

David E. Brown, D.C.
Director

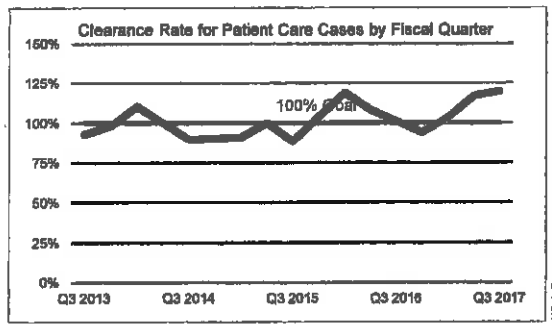
"To ensure safe and competent patient care by licensing health professionals, enforcing standards of practice, and providing information to health care practitioners and the public."
DHP Mission Statement

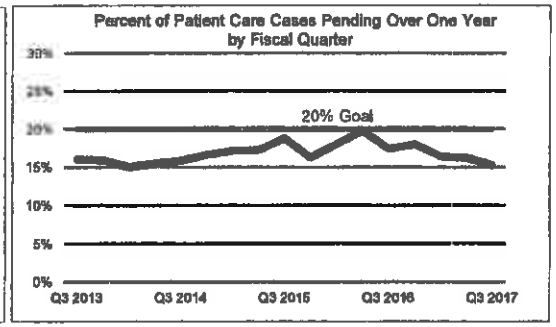
In order to uphold its mission relating to discipline, DHP continually assesses and reports on performance. Extensive trend information is provided on the DHP website, in biennial reports, and, most recently, on Virginia Performs through Key Performance Measures (KPMs). KPMs offer a concise, balanced, and data-based way to measure disciplinary case processing. These three measures, taken together, enable staff to identify and focus on areas of greatest importance in managing the disciplinary caseload; Clearance Rate, Age of Pending Caseload and Time to Disposition uphold the objectives of the DHP mission statement. The following pages show the KPMs by board, listed in order by caseload volume; volume is defined as the number of cases received during the previous 4 quarters. In addition, readers should be aware that vertical scales on the line charts change, both across boards and measures, in order to accommodate varying degrees of data fluctuation.

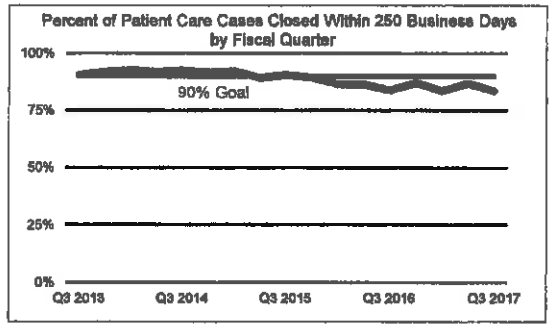
Clearance Rate - the number of closed cases as a percentage of the number of received cases. A 100% clearance rate means that the agency is closing the same number of cases as it receives each quarter. DHP's goal is to maintain a 100% clearance rate of allegations of misconduct. The current quarter's clearance rate is **120%**, with **964** patient care cases received and **1154** closed.

Age of Pending Caseload - the percent of open patient care cases over 250 business days old. This measure tracks the backlog of patient care cases older than 250 business days to aid management in providing specific closure targets. The goal is to maintain the percentage of open patient care cases older than 250 business days at no more than 20%. The current quarter shows **15%** patient care cases pending over 250 business days with **2,385** patient care cases pending and **364** pending over 250 business days.

Time to Disposition - the percent of patient care cases closed within 250 business days for cases received within the preceding eight quarters. This moving eight-quarter window approach captures the vast majority of cases closed in a given quarter and effectively removes any undue influence of the oldest cases on the measure. The goal is to resolve 90% of patient care cases within 250 business days. The current quarter shows **83%** percent of patient care cases being resolved within 250 business days with **1113** cases closed and **929** closed within 250 business days.







Submitted: 4/3/2017

Prepared by: Department of Health Professions

Virginia Department of Health Professions - Patient Care Disciplinary Case Processing Times, by Board

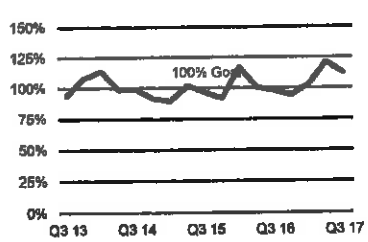
Clearance Rate

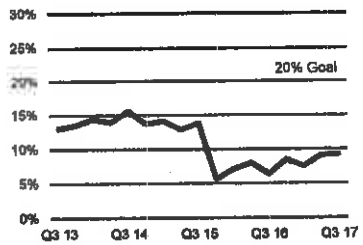
Age of Pending Caseload
(percent of cases pending over one year)

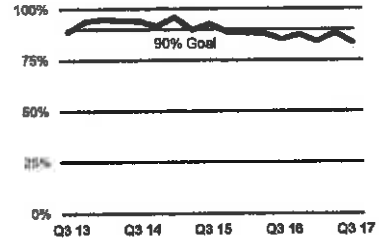
Percent Closed in 250 Business Days

Nursing - In Q2 2017, the clearance rate was **112%**, the Pending Caseload older than 250 business days was **9%** and the percent closed within 250 business days was **83%**

Q2 2017 Caseloads:
Received = **450**, Closed = **505**
Pending over 250 days = **107**
Closed within 250 days = **420**

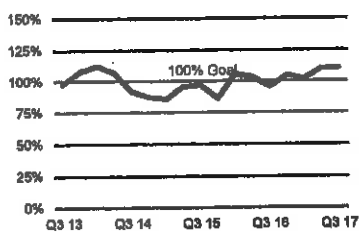


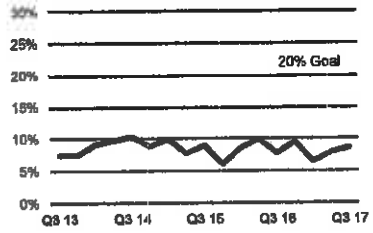


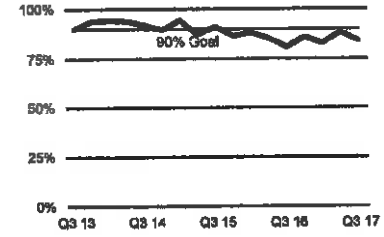


Nurses - In Q2 2017, the clearance rate was **110%**, the Pending Caseload older than 250 business days was **9%** and the percent closed within 250 business days was **84%**.

Q2 2017 Caseloads:
Received = **306**, Closed = **338**
Pending over 250 days = **72**
Closed within 250 days = **282**

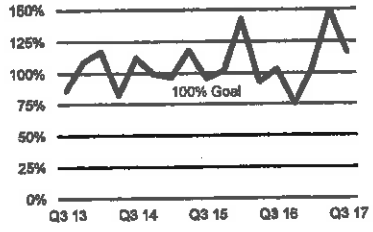


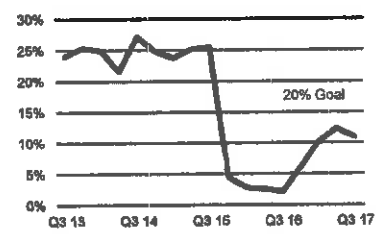


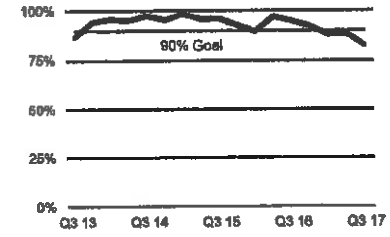


CNA - In Q2 2017, the clearance rate was **116%**, the Pending Caseload older than 250 business days was **11%** and the percent closed within 250 business days was **83%**.

Q2 2017 Caseloads:
Received= **144** , Closed = **167**
Pending over 250 days = **35**
Closed within 250 days = **138**







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Submitted: 4/3/2017

Prepared by: Department of Health Professions

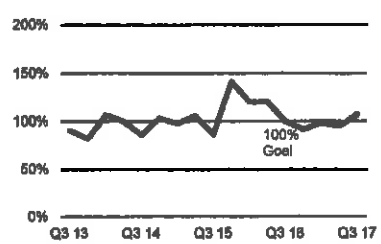
Virginia Department of Health Professions - Patient Care Disciplinary Case Processing Times, by Board

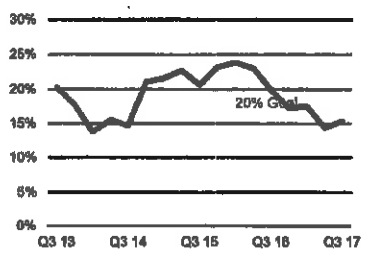
Clearance Rate

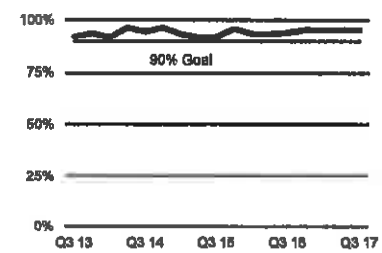
Age of Pending Caseload
(percent of cases pending over one year)

Percent Closed in 250 Business Days

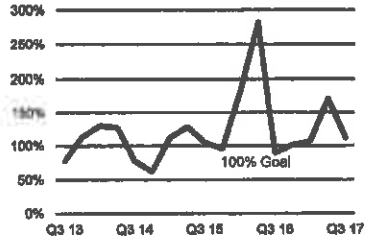
Medicine - In Q2 2017, the clearance rate was **107%**, the Pending Caseload older than 250 business days was **15%** and the percent closed within 250 business days was **95%**.
Q2 2017 Caseloads:
Received = **305** , Closed = **327**
Pending over 250 days = **86**
Closed within 250 days = **303**

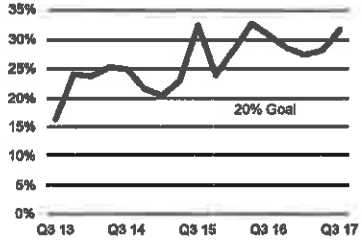


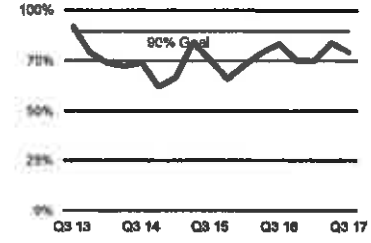




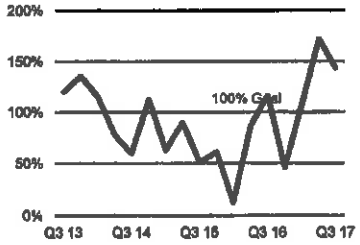
Dentistry - In Q2 2017, the clearance rate was **111%**, the Pending Caseload older than 250 business days was **32%** and the percent closed within 250 business days was **79%**.
Q2 2017 Caseloads:
Received= **62** , Closed = **69**
Pending over 250 days = **56**
Closed within 250 days = **50**

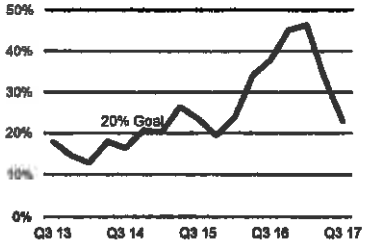


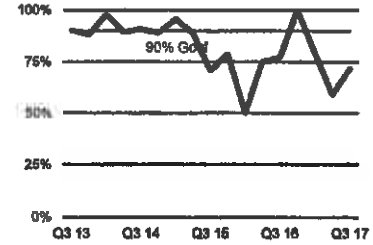




Pharmacy - In Q2 2017, the clearance rate was **143%**, the Pending Caseload older than 250 business days was **23%** and the percent closed within 250 business days was **72%**.
Q2 2017 Caseloads:
Received = **35** , Closed = **50**
Pending over 250 days = **29**
Closed within 250 days = **28**







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Submitted: 4/3/2017

Prepared by: Department of Health Professions

Virginia Department of Health Professions - Patient Care Disciplinary Case Processing Times, by Board

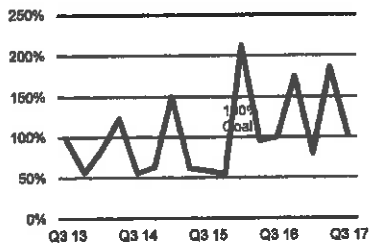
Clearance Rate

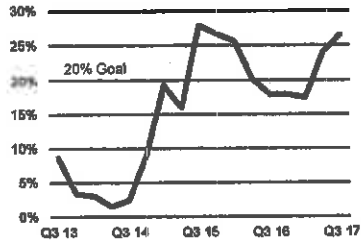
Age of Pending Caseload
(percent of cases pending over one year)

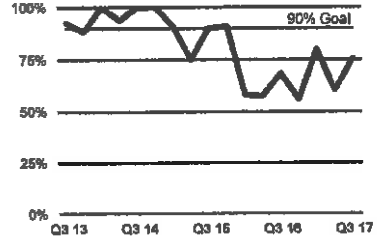
Percent Closed in 250 Business Days

Veterinary Medicine - In Q2 2017, the clearance rate was **102%**, the Pending Caseload older 250 business days was **26%** and the percent closed within 250 business days was **75%**.

Q2 2017 Caseloads:
Received = **46** , Closed = **47**
Pending over 250 days = **31**
Closed within 250 days = **34**

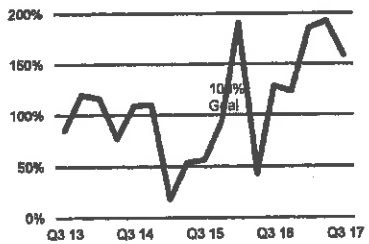


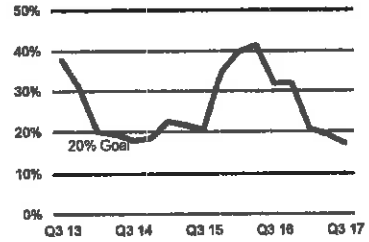


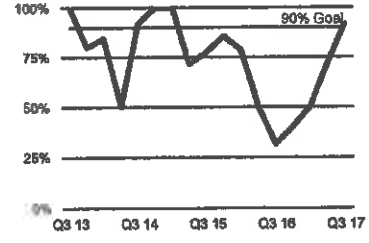


Counseling - In Q2 2017, the clearance rate was **158%**, the Pending Caseload older than 250 business days was **17%** and the percent closed within 250 business days was **92%**.

Q2 2017 Caseloads:
Received = **24** , Closed = **38**
Pending over 250 days = **7**
Closed within 250 days = **33**

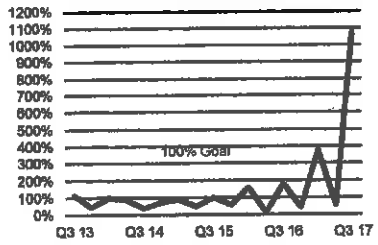


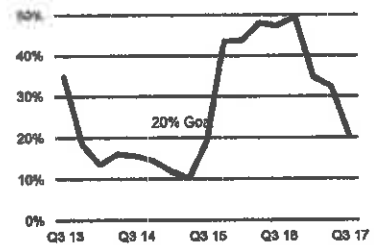


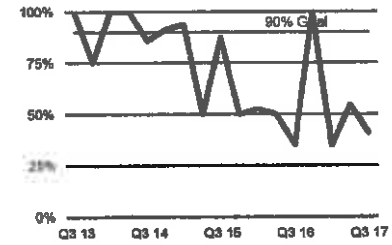


Social Work - In Q2 2017, the clearance rate was **1075%**, the Pending Caseload older than 250 business days was **21%** and the percent closed within 250 business days was **41%**.

Q2 2017 Caseloads:
Received = **4** , Closed = **43**
Pending over 250 days = **8**
Closed within 250 days = **16**







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Submitted: 4/3/2017

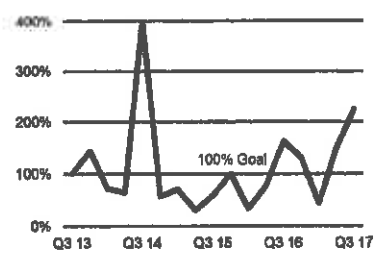
Prepared by: Department of Health Professions

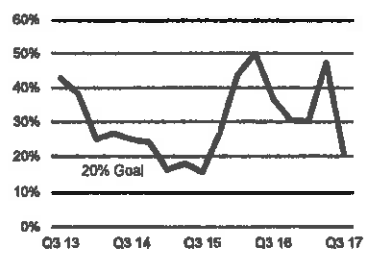
Virginia Department of Health Professions - Patient Care Disciplinary Case Processing Times, by Board

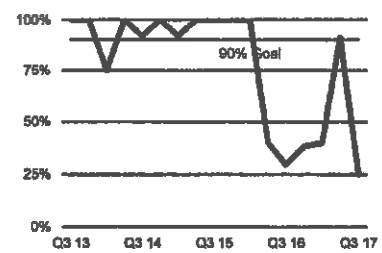
Clearance Rate | **Age of Pending Caseload** (percent of cases pending over one year) | **Percent Closed in 250 Business Days**

Psychology - In Q2 2017, the clearance rate was **225%**, the Pending Caseload older than 250 business days was **20%** and the percent closed within 250 business days was **25%**.

Q2 2017 Caseloads:
Received = 12 , Closed = 27
Pending over 250 days = 9
Closed within 250 days = 6

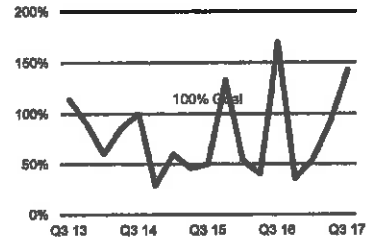


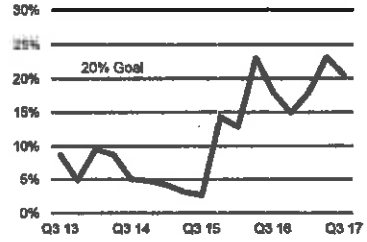


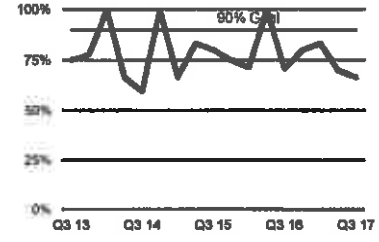


Long-Term Care - In Q2 2017, the clearance rate was **143%**, the Pending Caseload older than 250 business days was **20%** and the percent closed within 250 business days was **67%**.

Q2 2017 Caseloads:
Received = 7 , Closed = 10
Pending over 250 days = 10
Closed within 250 days = 6

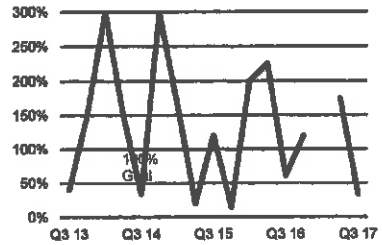


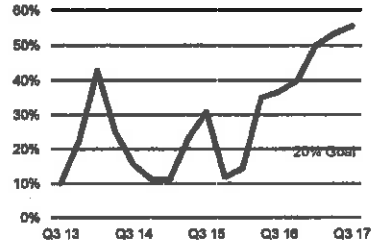


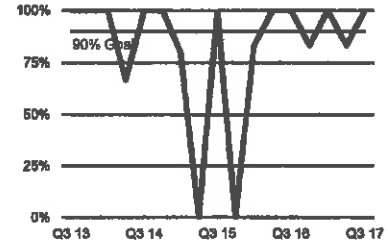


Optometry - In Q2 2017, the clearance rate was **33%**, the Pending Caseload older than 250 business days was **56%** and the percent closed within 250 business days was **100%**.

Q2 2017 Caseloads:
Received = 3 , Closed = 1
Pending over 250 days = 10
Closed within 250 days = 1







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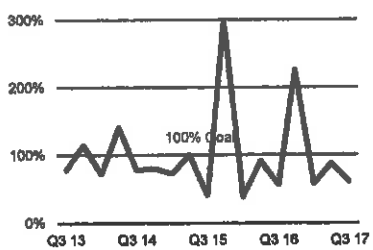
Prepared by: Department of Health Professions

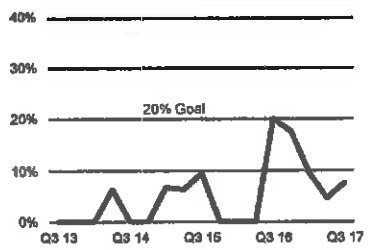
Virginia Department of Health Professions - Patient Care Disciplinary Case Processing Times, by Board

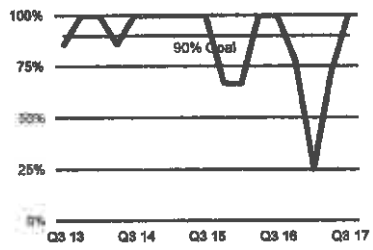
Clearance Rate | **Age of Pending Caseload** (percent of cases pending over one year) | **Percent Closed in 250 Business Days**

Physical Therapy - In Q2 2017, the clearance rate was **60%**, the Pending Caseload older than 250 business days was **8%** and the percent closed within 250 business days was **100%**.

Q2 2017 Caseloads:
Received = 5 , Closed = 3
Pending over 250 days = 2
Closed within 250 days = 3

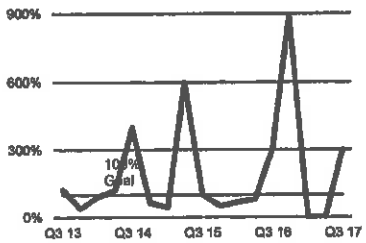


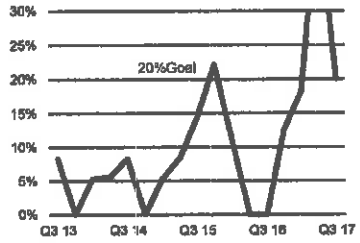


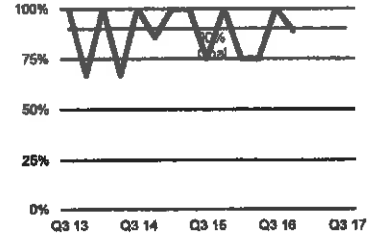


Funeral - In Q2 2017, the clearance rate was **300%**, the Pending Caseload older than 250 business days was **20%** and the percent closed within 250 business days was **50%**.

Q2 2017 Caseloads:
Received = 2 , Closed = 6
Pending over 250 days = 2
Closed within 250 days = 3

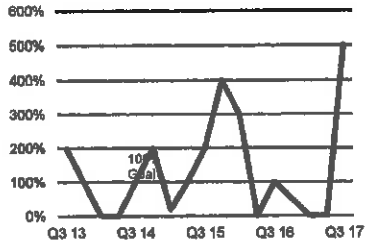


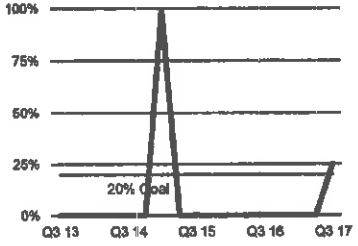


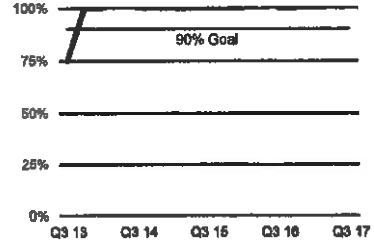


Audiology - In Q2 2017, the clearance rate was **500%** the Pending Caseload older than 250 business days was **25%** and the percent closed within 250 business days was **100%**.

Q2 2017 Caseloads:
Received = 1 , Closed = 5
Pending over 250 days = 1
Closed within 250 days = 5







Note: Vertical scales on line charts change, both across boards and measures, in order to accommodate varying degrees of data fluctuation.

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Prepared by: Department of Health Professions